

LOYOLA UNIVERSITY



NOTE

No Graduate Division
bulletin was printed
for 1970-71.

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Set II

GRADUATE BULLETIN

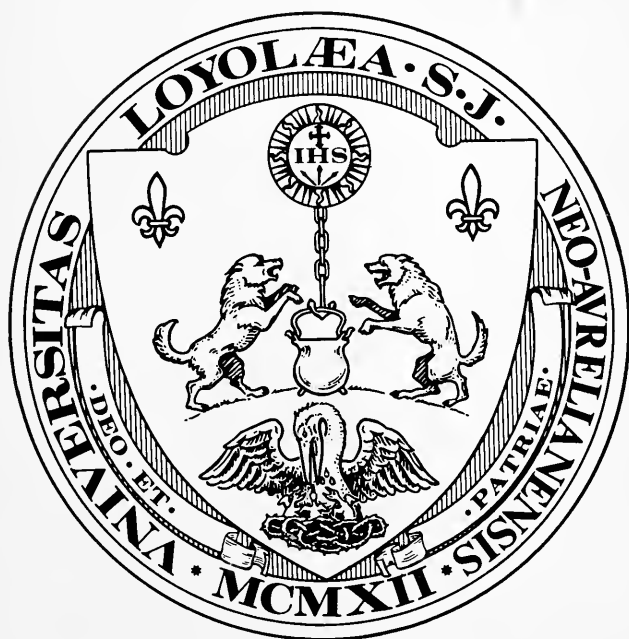
1971-1972

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Loyola University
New Orleans, Louisiana 70118
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The Bulletin of
LOYOLA UNIVERSITY
Graduate Studies Issue



Ad Majorem Dei Gloriam

1971-72

Containing the programs in Arts and Sciences,
Business, Education,
and Music

New Orleans

LOYOLA UNIVERSITY BULLETIN

Vol. LIII

1971

No. 2

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Loyola University, Incorporated April 15, 1912. Authorized to grant degrees by The General Assembly of Louisiana for the year 1912.

The Legal and Corporate Title of the University is "Loyola University, New Orleans".

All donations, endowments, legacies, bequests, etc., should be made under this title.



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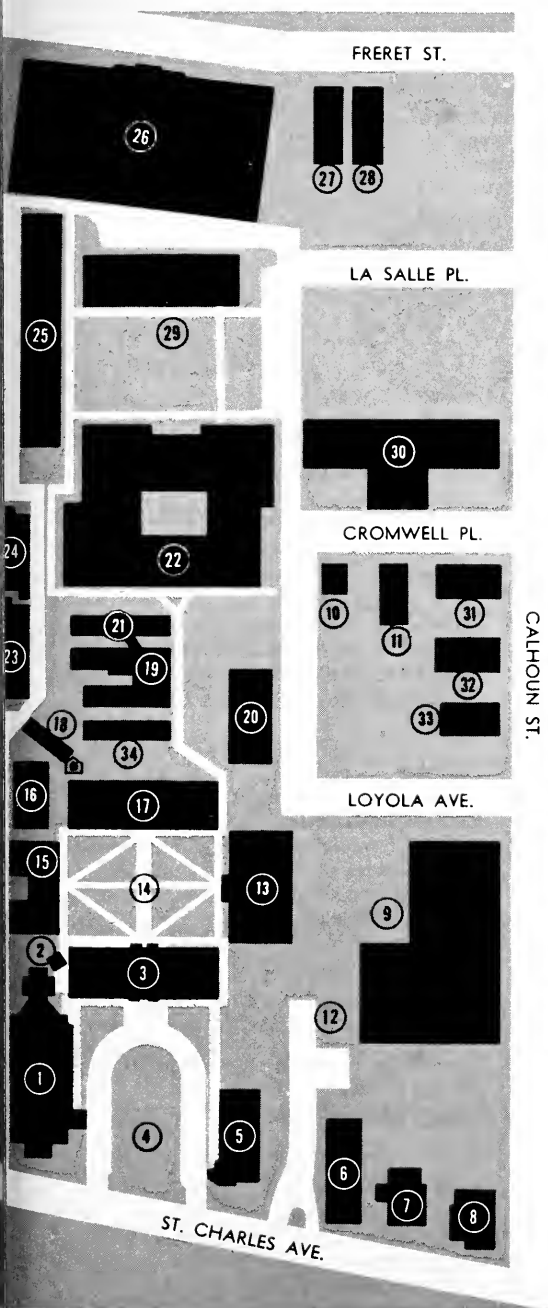
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1971

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1. Holy Name Church
2. Burke Memorial
3. Marquette Hall
4. Horseshoe
5. Thomas Hall
6. Law Building
7. Cummings Hall
8. Music Building
9. Science Complex
10. Special Projects Building
11. Administrative Practices
12. Science Complex Parking Lot
13. Library
14. Quadrangle
15. Stallings Hall
16. Blenke Utilities Building
17. Bobet Hall
18. Animal House
19. Medical Technology Building
20. Purchasing-Security Building
21. Dental Hygiene Building
22. Danna Center
23. Physical Plant Building
24. Maintenance Building
25. Biever Hall
26. Field House
27. Carey Hall
28. Martin Hall
29. Buddig Hall
30. Holy Name School
31. Health Research Building
32. Alumni Building
33. Art Building
34. Drama and Speech Building

The sections of this bulletin are marked by the two seals that have historically been used by the Society since it began education at its present location. The smaller of the two was used in the old Loyola College bulletins published from 1904 through 1910. The larger seal was used by the newly chartered Loyola University from its inception until 1929. Beginning with 1930 university bulletins have appeared with basically the seal used on the title page of this bulletin.



Academic Calendar

Spring Semester 1971

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January

- 16 G.R.E. testing date.
- 18-19 Registration: City College; Graduate.
- 21 Registration: Senior/Junior; Graduate.
- 22 Registration: Sophomore/Freshman; Graduate.
- 25 Classes begin. Late registration fee due.

February

- 1 Last day for late registration. Latest date for adding courses. Latest date to drop a course and not have it recorded on the permanent record. Grades of WP or WF will be given in courses dropped after this date.
- 6 A.T.G.S.B. testing date.
- 22-24 Mardi Gras holidays.
- 27 G.R.E. testing date.

March

- 15 Latest date to apply for graduate degrees awarded in May.
- 17 Midterm appraisals due.

April

- 3 A.T.G.S.B. testing date.
- 7 Easter holidays begin after last class.
- 13 Classes resume.
- 16 Latest date to drop a course.
- 24 G.R.E. testing date.
- 26 Students graduating in May to have submitted all theses and taken all comprehensives by this date.
- 26-30 Pre-registration for Fall and Summer
- 30 Awards Day.

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May

- 8 Last day of class; M.A.T. testing date.
- 10 Final exams begin.
- 17 Terminal date for graduate summer admissions; latest date for submission of grades for all candidates for graduation in May 1971.
- 20 Ascension Thursday. University Holiday.
- 25 Final exams end.
- 27 Commencement/Baccalaureate.
- 28 Last day for grades.

Summer Session 1971

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June

- 4 Registration for all Colleges for First Session. (Graduate School included)
9:00 a.m.-11:00 a.m. Names A-L-Danna Center.
11:00 a.m.-1:00 p.m. Names M-Z-Danna Center.
City College 6:00-9:00 p.m.-Registrar's Office.
- 5 Late registration 9:00-12:00 a.m.
- 7 Classes begin.
- 19 G.R.E. testing date
- 26 A.T.G.S.B. testing date.
- 30 Last day in 1st. session to apply to graduate in August, 1971.

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July

- 5 University holiday for Independence Day.
- 9 Final date for theses.
- 14 Final examinations. End of 1st. session.
- 15 Registration for 2nd. session.
- 16 Classes begin.
- 31 Feast of St. Ignatius.

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August

- 2 Last day in 2nd. session to apply to graduate in August, 1971.
- 7 M.A.T. testing date.
- 14 A.T.G.S.B. testing date.
- 15 Terminal date for graduate fall admissions.
- 23 Final examinations. End of 2nd. session.
- 24 Grades due from faculty.

Fall Semester 1971

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August

- 15 Terminal date for graduate admission.
- 24-25 Registration: City College and Graduate
6:00-9:00 p.m.
- 26 Registration: Senior/Junior and Graduate
- 27 Registration: Sophomore/Freshman and Graduate. Orientation.
- 30 Classes begin. Late registration fee due.

September

- 3 Latest date for registration. Opening convocation.
- 6 Labor day. University holiday.
- 7 Latest date for adding courses.

October

- 20 Midterm appraisals due.
- 22 Latest date to apply for graduation in December 1972.
- 23 G.R.E. testing date.

November

- 1 All Saints Day. University holiday.
- 19 Latest date to drop a course.
- 24 Thanksgiving holidays after last class.
- 29 Final date for theses.
- 29 Classes resume.

December

- 6-10 Pre-registration for Spring Semester.
- 8 Immaculate Conception. University holiday.
- 9 Last day of class.
- 10 Final examinations begin.
- 11 G.R.E. testing date.
- 18 M.A.T. testing date.
- 21 Final examinations end.
- 22 Last day to hand in grades.

Spring Semester 1972

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21	22	23	24	25	26	27
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January

- 3 Terminal date for graduate spring admissions.
- 17-18 Registration: City College and Graduate
6 p.m.-9:00 p.m.
- 20 Registration: Senior/Junior.
- 21 Registration: Sophomore/Freshman.
- 24 Classes begin. Late registration fee due.
- 28 Last day for late registration.

February

- 1 Latest date for adding courses.
- 14-16 Mardi Gras holidays.

March

- 15 Latest date to apply for graduate degrees awarded in May.
- 16 Midterm appraisals due.
- 29 Easter holidays begin after last class.

April

- 4 Classes resume.
- 7- 8 Music comprehensives.
- 14 Latest date to drop a course.
- 15 Music scholarship auditions.
- 24 Final date for theses
- 24-28 Pre-registration for Fall and Summer.
- 28 Awards Day.

May

- 5 Last day of class.
- 8 Final exams begin.
- 11 Ascension Thursday. University holiday.
- 15 Latest date for submission of grades for all candidates for graduation in May 1972.
- 17 Terminal date for graduate admission.
- 20 Final exams end.
- 21 Baccalaureate mass at 4 p.m.
- 22 Commencement. Last day for submission of grades for all students.



"The lists of Administration, Committees, and Faculty are for the academic year 1970-71, corrected to December 1, 1970. The list of Faculty is of graduate faculty only, and includes emeritus members as well as those on leave."



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*Rudolf Coper, *Assistant Dean of Business Administration*

Marshall J. David, *Chairman of the Board*, *Franklin Printing Company*

John Henry Edwards, *Vice President and Treasurer*, *Jackson Brewing Co.*

Alphonse C. Elmer, *Partner*, *Franklin Tax Service*

Sidney Farrell, *President*, *Seven-Eleven Food Stores*

Wm. F. Finegan, C.P.A., *J. K. Bryne and Co.*

**Miss Margaret E. Lauer, C.P.A., *1500 American Bank Bldg.*

Edmond G. Miranne, *President Security Homestead Association*

****John Oulliber, *Chairman of the Board, National Bank of Commerce in New Orleans***

Gus H. Rathe, Jr., *Director of Education, International Business Machines Corp., White Plains, New York*

A. Louis Read, *President and General Manager, WDSU-TV*

Roy T. Sessums, *Vice President, Freeport Sulphur Company*

Dan E. Stapp, *Vice President, Middle South Service, Inc.*

F. Winter Trapolin, *F. Winter Trapolin Insurance Agency*

F. Poche Waguespack, Jr., *President, Waguespack Pratt, Inc.*

*** ex officio**

**** ex officio by virtue of membership on Board of Regents**



Committees of the College of Music

CURRICULUM: Joe B. Buttram, *Chairman*, James Bastien, Charles E. Braswell, Mel Ivey, Patrick McCarty.

GRADUATE STUDIES: Joe B. Buttram, *Chairman*, Charles E. Braswell, Patrick McCarty, Sherman Vander Ark.

LIBRARY: Charles E. Braswell, *Chairman*, James Bastien, Elise Cambon, Janet S. Martin.

RANK AND TENURE: James Bastien, *Chairman*, Charles E. Braswell, Elise Cambon, Michael J. Carubba, Patrick McCarty.

SCHOLARSHIP: Patrick McCarty, *Chairman*, James Bastien, Joseph Hebert, Mel Ivey.



GRADUATE FACULTY



The Ordinary Faculty

MARGARET T. ALUMKAL, Ph.D., *Associate Professor of Management.*
B.A., St. Teresa's College, 1954; M.B.A., De Paul University, 1962; Ph.D., University of Nebraska, 1967.

- JAMES BASTIEN, Mus.M., *Associate Professor of Piano, Chairman of the Department.*
B.M., Southern Methodist University, 1957; Mus.M., *ibid.*, 1958.
- E. LETITIA BEARD, Ph.D., *Professor of Cellular Physiology*
B.A., Texas Christian University, 1952; B.S., *ibid.*, 1953; M.T. (A.S.C.P.), 1953; M.S., Texas Christian University, 1955; Ph.D., Tulane University, 1961.
- FRANCIS A. BENEDETTO, S.J., Ph.D., *Executive Assistant to the President; Professor of Physics.*
A.B., St. Louis University, 1936; M.S., Fordham University, 1940; Ph.D., *ibid.*, 1946.
- ALLEN I. BOUDREAUX, M.B.A., *Professor of Accounting.*
B.S., Loyola University, New Orleans, 1942; M.B.A., Louisiana State University, 1950; C.P.A., 1953.
- CARL H. BRANS, Ph.D., *Professor of Physics; Chairman of the Department*
B.S., Loyola University, New Orleans, 1957; Ph.D., Princeton University, 1961.
- CHARLES E. BRASWELL, Mus.M., *Associate Professor of Music Therapy, Chairman of the Department.*
B.M., North Texas State University, 1950; Mus.M., American Conservatory of Music, Chicago, 1952; R.M.T., Kansas University and the Menninger Clinic, 1956.
- JOE B. BUTTRAM, Ph.D., *Professor of Music Education; Chairman of the Graduate Department; Dean of College of Music.*
B.M., North Texas State University, 1954; M.M.E., *ibid.*, 1957; Ph.D., Kansas University, 1967.
- JAMES C. CARTER, S.J., Ph.D., *Academic Vice President; Associate Professor of Physics.*
B.S., Spring Hill College, 1952; M.S., Fordham University, 1953; Ph.D., The Catholic University of America, 1956; S.T.L., Woodstock College, 1959.
- MICHAEL J. CARUBBA, Mus.M., *Professor of Applied Music; Chairman of the Department.*
B.M.E., Loyola University, New Orleans, 1949; M.M.E., Louisiana State University, 1951; Mus.M., *ibid.*, 1952.
- SR. MARIE CONDON, Ph.D., *Assistant Professor of Education.*
B.A., University of Southwestern Louisiana, 1950; M.A., Louisiana State University, 1954; Ph.D., *ibid.*, 1959.
- RUDOLF COPER, Ph.D., *Professor of Economics and Finance; Assistant Dean, College of Business Administration*
Ph.D., Friedrich Wilhelms Universitat, Berlin, Germany, 1930.
- CLEMENT COSGROVE, S.C., Ph.D., *Associate Professor of Education.*
Ph.B., Loyola University, New Orleans, 1935; M.S., Fordham University, 1951; Ph.D., *ibid.*, 1955.
- SR. SYLVESTER DeCONGE, S.S.F., Ph.D., *Assistant Professor of Mathematics.*
B.A., Seton Hill College, 1959; M.A., Louisiana State University, 1962; Ph.D., St. Louis University, 1968.
- ANTHONY DIMAGGIO III, Ph.D., *Associate Professor of Biochemistry; Chairman of the Department of Chemistry.*
B.S., Loyola University, New Orleans, 1956; Ph.D., Louisiana University, 1961.
- VERONICA M. EGAN, M.A., *Assistant Professor of Education.*
A.B., Upsala College, 1946; M.A., Fordham University, 1948.

- RALPH J. ERICKSON, Ph.D., *Professor of Education; Chairman of the Department.*
B.A., Concordia College, 1941; M.A., University of Minnesota, 1951; D.Ed., University of Illinois, 1958.
- MARY C. FITZGERALD, M.Ed., *Assistant Professor of Education.*
B.S., Loyola University, New Orleans, 1951; M.Ed., *ibid.*, 1956.
- IRVING A. FOSBERG, Ph.D., *Professor of Management.*
B.A., New York University, 1937; M.A., Columbia University, 1938; Ph.D., New York University, 1940.
- HENRY A. GARON, M.S., *Assistant Professor of Physics.*
B.S., Loyola University, New Orleans, 1947; M.S., University of Notre Dame, 1950.
- CLIFFORD J. HEBERT, Ph.D., *Assistant Professor of Chemistry.*
B.S., Southwestern Louisiana College, 1963; Ph.D., University of Notre Dame, 1967.
- MILVERN IVEY, Mus.M., *Assistant Professor of Voice; Director of Choral Activities.*
B.M., North Texas State University, 1963; Mus.M., *ibid.*, 1967.
- DAVID G. KEIFFER, JR., Ph.D., *Associate Professor of Physics.*
B.S., Loyola University, New Orleans, 1952; M.S., University of Notre Dame, 1953; Ph.D., *ibid.*, 1956.
- KAMEL T. KHALAF, Ph.D., *Professor of Entomology.*
B.Sc., University of Baghdad, 1944; M.Sc., University of Oklahoma, 1950; Ph.D., *ibid.*, 1953.
- CRESTON A. KING, JR., Ph.D., *Assistant Professor of Physics.*
B.A., Rice University, 1958; M.A., Duke University, 1962; Ph.D., Rice University, 1965.
- FRANK KOMITSKY, JR., Ph.D., *Assistant Professor of Chemistry.*
B.S., Grove City College, 1960; Ph.D., The Ohio State University, 1964.
- G. WALLACE LEFTWICH, M.B.A., *Professor of Accounting.*
B.S., Loyola University, New Orleans, 1947; M.B.A., Tulane University, 1950; C.P.A., 1949.
- ROLAND LESSEPS, S.J., Ph.D., *Assistant Professor of Biology.*
B.S., Spring Hill College, 1958; Ph.D., The Johns Hopkins University, 1962.
- SHU-JAN LIANG, Ph.D., *Assistant Professor of Economics.*
B.A., National Taiwan University, 1958; M.A., University of California, 1967; Ph.D., University of Oklahoma, 1970.
- DONALD L. LOSMAN, Ph.D., *Associate Professor of Economics.*
B.S., University of Florida, 1963; M.A., *ibid.*, 1964; Ph.D., *ibid.*, 1969.
- PATRICK McCARTY, Ph.D., *Associate Professor of Theory and Composition; Chairman of the Department.*
B.M., West Virginia University, 1952; Mus.M., Eastman School of Music, Rochester, 1953; Ph.D., *ibid.*, 1958.
- *JOHN T. McHALE, Ph.D., *Associate Professor of Plant Physiology.*
B.S., Iona College, 1955; Ph.D., University of Texas, 1965.
- ROBERT T. McLEAN, Ph.D., *Professor of Mathematics; Chairman of the Department.*
B.S., Otterbein College, 1946; M.A., Bowling Green State University, 1950; Ph.D., University of Pittsburgh, 1961.

* On leave of absence.

CLEMENT J. McNASPY, S.J., Mus.Doc., *University Professor*.

A.B., St. Louis University, 1936; M.A., *ibid.*, 1938; Ph.L., *ibid.*, 1945; Mus. Lic., Montreal University, 1946; Mus.Doc., *ibid.*, 1947.

WALTER G. MOORE, Ph.D., *Professor of Biology*.

A.B., Wayne University, 1934; A.M., University of Minnesota, 1938; Ph.D., *ibid.*, 1940.

JOHN H. MULLAHY, S.J., Ph.D., *Professor of Biology; Chairman of the Department of Biological Sciences*.

A.B., St. Louis University, 1937; M.S., Fordham University, 1941; S.T.L., St. Louis University, 1946; Ph.D., Vanderbilt University, 1951.

SAM NADLER, Ph.D., *Associate Professor of Mathematics*.

B.A., Tulane University, 1961; M.A., University of Georgia, 1963; Ph.D., *ibid.*, 1966.

ALLEN R. NEWMAN, Ph.D., *Assistant Professor of Economics; Acting Chairman of the Department*.

A.B., Stetson University, 1964; M.A., University of North Carolina, 1968; Ph.D., *ibid.*, 1970.

ROBERT C. PETERSON, Ph.D., *Research Professor of Chemistry*.

B.S., University of Maine, 1947; Ph.D., University of Southern California, 1957.

JOSEPH E. QUINN, Ph.D., *Assistant Professor of Mathematics*.

B.S., University of Dayton, 1966; M.S., Michigan State University, 1968; Ph.D., *ibid.*, 1970.

ROBERT J. RATCHFORD, S.J., Ph.D., *Assistant Professor of Chemistry*.

B.S., Spring Hill College, 1953; Ph.D., The Catholic University of America, 1958.

ARTHUR L. RAYHAWK, Ph.D., *Professor of Marketing; Chairman of the Department*.

A.B., Regis College, 1925; M.A., The Catholic University of America, 1927; Ph.D., *ibid.*, 1932.

G. RALPH SMITH, Ph.D., *Professor of Management; Dean of the College of Business Administration*.

B.S., Hamilton College, 1937; M.S., Syracuse University, 1950; Ph.D., *ibid.*, 1954.

HILDA CHIARULLI SMITH, Ph.D., *Associate Professor of Education*.

B.S., Syracuse University, 1941; M.A., *ibid.*, 1947; Ph.D., *ibid.*, 1955.

ROBERT R. STEVENS, Ph.D., *Assistant Professor of Mathematics*.

B.S.E.E., Purdue University, 1958; M.S., *ibid.*, 1960; Ph.D., University of Arizona, 1965.

LAWRENCE J. STROHMEYER, M.S., *Associate Professor of Physics*.

B.S., Loyola University New Orleans, 1938; M.S., New York University, 1940.

RAO J. TATIKONDA, Ph.D., *Assistant Professor of Management*.

B.E., Andhra University, 1958; Ph.D., University of Texas, 1965; M.B.A., Tulane University, 1969; Cand. Ph.D., *ibid.*

LEWIS J. TODD, A.M., *Associate Professor of Mathematics*.

B.S., Loyola University, New Orleans, 1953; A.M., Tulane University, 1952.

BERNARD A. TONNAR, S.J., M.A., *Associate Professor of Mathematics; Director of International Studies*.

A.B., St. Louis University, 1937; A.M., The Catholic University of America, 1940; S.T.L., St. Louis University, 1946.

JAGDISH M. UPADHYAY, Ph.D., *Associate Professor of Microbiology*.

B.Pharm., Gujerat University, India, 1951; M.S., University of Michigan, 1957; Ph.D., Washington State University, 1963.

- SHERMAN VANDER ARK, Ph.D., *Assistant Professor of Music Education*.
A.B., Calvin College, 1962; M.A., Ohio State University, 1964; Ph.D., *ibid.*, 1970.
- JASJIT SINGH WALIA, Ph.D., *Associate Professor of Chemistry*.
B.S., Honors, Punjab University, India, 1955; M.S., Honors, *ibid.*, 1956; Ph.D., University of Southern California, 1960.
- *RICHARD S. WENDT, Ph.D., *Associate Professor of Chemistry*.
A.B., Washington University, St. Louis, 1954; Ph.D., University of Wisconsin, 1960.
- RAY H. WITHAM, B.A., *Associate Professor of Mathematics*.
B.A., Illinois College, 1945.
- JACQUES E. YENNI, S.J., Ph.D., *Professor of Economics*.
B.S., Ec., Loyola University, New Orleans, 1930; M.A., St. Louis University, 1936; Ph.D., University of California, Berkeley, 1949.
- BLANCHE ZINK, Ph.D., *Assistant Professor of Education*.
B.A., Southern Methodist University, 1948; M.A., *ibid.*, 1949; Ph.D., University of Texas, 1965.

* On leave of absence.



The Extraordinary Faculty

- CARL W. AHLERS, Cand. Ph.D., *Instructor in Mathematics*.
B.S.E.E., University of Texas, 1964; M.S., *ibid.*, 1966; Cand. Ph.D., Texas Technological University.
- SAMSON P. BORDELON, Ph.D., *Lecturer in Education*.
B.A., St. Michael's College, 1943; M.Ed., Louisiana State University, 1953; Ph.D., University of Southern Mississippi, 1966.
- LORYNNE CAHN, M.Ed., *Instructor in Education*.
B.S., New York University, 1950; M.Ed., Loyola University, New Orleans, 1969.
- CHRISTINE A. CHRISTMAN, M.S.W., *Instructor in Music Therapy*.
B.M.T., Loyola University, New Orleans, 1962; M.S.W., Tulane University, 1966.
- JAMES K. FUGATE, Cand. Ph.D., *Instructor in Mathematics*.
B.A., University of Texas, 1963; Texas Christian University, 1967; Cand. Ph.D., *ibid.*
- GERALD N. GASTON, M.B.A., *Lecturer in Business Administration*.
B.A., Nicholls State College, 1959; M.B.A., Loyola University, New Orleans, 1965.
- JOSEPH HEBERT, JR., Mus.M., *Instructor in Music Education; Director of Bands*.
B.M.E., Loyola University, New Orleans, 1963; Mus.M., Manhattan School of Music, 1965.
- KARL A. MARING, S.J., Ph.D., *Professor Emeritus of Physics*.
A.B., Woodstock College, 1915; A.M., *ibid.*, 1916; Ph.D., St. Louis University, 1932.
- ESTHER M. OLIN, Mus.M., *Instructor in Theory and Violin*.
B.M., Wheaton College, 1956; Mus.M., Eastman School of Music, 1961.
- RAYMOND K. SMITH, M.A., *Lecturer in Education*.
B.A., Xavier University, New Orleans, 1946; M.A., *ibid.*, 1951.

JUDITH McPHEE THREADGILL, M.S., *Instructor in Mathematics.*

B.A., Seattle University, 1962; M.S., University of Notre Dame, 1965.

OCTAVE J. TOURNILLON III, D.Ed., *Lecturer in Physical Education.*

B.S., University of Southwestern Louisiana, 1949; M.S., Louisiana State University, 1953; D.Ed., University of Southern Mississippi, 1967.





THE UNIVERSITY

Loyola is a Jesuit university, founded in 1912 by the Society and supported by it. The university offers a wide variety of undergraduate programs, graduate degrees in business, education, music and the sciences, and professional degrees in dentistry and law.

Loyola is composed of six colleges: Arts and Sciences, Business, Dentistry, Law, Music, and City College.

In addition the university has programs in graduate work, and an annual summer session. It also owns and operates the WWL radio and television complex. All divisions of the university are coeducational, and selection is made without reference to race, residence, or religion.

Loyola enrolls about 5,000 students each year. Approximately half are undergraduates, about a third are women, and third, part time. There are somewhat under 400 faculty members, and three-fourths of these are full time. About 50 of these are Jesuits. Both faculty and students are geographically diversified, with under two-thirds coming from the Southern region.

The university is located in the uptown residential section of New Orleans, on St. Charles avenue, facing Audubon Park, and covers approximately nineteen acres. On this site are modern high rise dormitories and a student center. A new multistory science complex containing classroom and office space for many university departments complements the traditional academic buildings. Ground is being broken for a new Law School, and a Fine Arts and Communications Complex and a new Library are now being planned.

The founder of New Orleans, Bienville, dreamed of establishing a Jesuit college here in the early days of the settlement. Even before that Pere Marquette, S.J., had accompanied Louis Jolliet on the expedition that opened the exploration of the Mississippi River. It was not until 1723, however, that the first Louisiana Mission of the Society of Jesus was established and even then their aim was missionary work among the Indians rather than a formal school in New Orleans.

It was more than a century later in 1847 that the Jesuits took steps to found a college in New Orleans. The following year property was purchased at the corner of Baronne and Common and the first students reported in February of 1849. It is to this school, the College of the Immaculate Conception, that Loyola traces its history. It was organized in the European fashion taking boys from the age of twelve or thirteen and giving them in six or seven years a combination of what today we would call both high school and college training.

By 1904 another Jesuit Academy or College was opened on St. Charles Avenue opposite Audubon Park and called Loyola College. In 1911 the

Jesuit schools in New Orleans were reorganized. The downtown college kept its secondary department and received the secondary school pupils from the uptown area as well. It yielded the higher departments—or what we call “college” today—to the uptown Loyola College, which was now developing its university status.

By 1912 the state had granted Loyola a University Charter. It rapidly began to develop new schools and colleges—Pharmacy in 1913, Law and Dentistry in 1914, Music in 1932, Business Administration in 1947.

In 1909 a spark-gap transmitter was started on campus as part of the Physics Department. By 1922 it had matured into WWL, and in 1935 it became the CBS affiliate in New Orleans. Today it is one of the few 50,000 watt clear channel stations in the nation and is heard all over the Mississippi Valley and in other parts of the country. In 1957 the university branched into television with WWL-TV. Today Channel 4 is the CBS outlet in the New Orleans area and the leading television station in the area. Both WWL and WWL-TV are still part of Loyola University and besides providing much-needed financial assistance to the University they furnish the media by which Loyola serves a larger public. They also provide valuable technical assistance to the Department of Communications.

Today the University aims at not only the acquisition, transmission, and presentation of knowledge, but at the intricate processes of developing the whole individual.

Loyola is a Catholic university and provides a Christian environment in which these objectives are pursued. It dedicates itself to living up to the ideals laid down for Christian institutions by the Second Vatican Council.

Loyola is a Jesuit university and endeavors to effect that integration of natural and revealed truth and motivation which may lead the student, in the Ignatian phrase, “to see God in all things,” bringing him to a fuller and more fruitful life in Time through his vision of Eternity. Loyola also treasures its Jesuit heritage as a call to meet the changes of the last third of the twentieth century. It is paradoxical that rapid change is a permanent feature of American life today. It is the tradition of the Society of Jesus to try to discern what is good and true in the movements of history. Loyola pledges itself to educate its students to meet change with equanimity, good judgment and constructive leadership, and to make value judgments in a world where values are undergoing constant scrutiny.

Loyola is an American university which treasures the permanent part of the American past and American achievement in government, education, and “the pursuit of happiness.” It stands firmly for the American tradition of pluralism in education. It believes that the university has an obligation to society. It values the traditional safeguards of academic freedom and student rights which have evolved in this country.

Loyola is a New Orleans university and draws on the exceptional opportunities for cultural growth, study and research afforded by its location for both faculty and students. In return, by providing a variety of instructional programs, trained specialists and sensitive leaders Loyola strives to be a source of knowledge, inspiration and service to the New Orleans community and to the South generally.



Graduate Studies

The Jesuit colleges in New Orleans offered graduate work leading to an M.A. as early as 1868 at the Baronne Street campus, and the newly chartered Loyola University offered graduate and postgraduate work from its inception.

The growth of the University's graduate programs led to the development of the present organizational system in 1964, when the Graduate Council was formed by the President to direct the graduate programs of the University.

The first chairman of the Graduate Council was the Reverend John Keller, S.J. The second and current chairman is Anthony DiMaggio, III, Ph.D.

Presently the University offers work leading to both the master's and doctor's degrees. Students may pursue courses of study leading to the degree of Master of Education in five fields, Master of Music Education, Master of Music Therapy, Master of Business Administration, Master of Science in Biological Sciences, Master of Science in Mathematics, and Master of Science in Teaching in Chemistry, Mathematics, and Physics.

Students may also work towards a doctoral degree in chemistry.

The University is accredited by the Southern Association of College and Secondary Schools, by the National Council for Accreditation of Teacher Education, and is a member of American Association of Collegiate Schools of Business, the Association of Jesuit Colleges and Universities, the National Catholic Education Association, the Association of American Colleges, the American Association of Colleges for Teacher Education, and the National Association of Summer Schools.

The University has been approved by the Louisiana State Board of Education for teacher education.





ADMISSIONS

ADMISSION to the graduate divisions of Loyola University represents a selection based on the personal and academic records of the applicants. The appropriate committee of the Graduate Council and of the major programs examine the applicant's records for evidence of potential for graduate study.

The program is devised to select graduate students with strong potential for graduate study, intellectual achievement, and personal character, without reference to race or creed. Specific standards have been established by the Graduate Council appointed by the President. These requirements are listed under "Academic Requirements for Admission."

There are separate admissions standards for students who seek professional improvement but do not seek a degree, and these are listed under the category "Special Admissions" on page 24.

INSTRUCTIONS FOR MAKING APPLICATION

1. Applications should be requested from the Chairman of the Graduate Council, Loyola University, Box 87, New Orleans, Louisiana 70118. There is no priority based upon date of application, but there are deadlines for the receipt of all credentials, which includes duplicate application, \$15.00 non-refundable application fee, duplicate transcripts, recommendation letters and admission test scores. The Graduate Council should have received the completed application with all necessary credentials before 15 August for the fall term, those for the spring before 3 January and for the summer before May 17.

2. Applicants should arrange to take the appropriate tests well before they file applications. Applicants to the Graduate School of Business Administration must take the Admission Test for Graduate Study in Business (A.T.G.S.B.). Those applying to the Graduate Schools of Education and Music must take the Miller Analogies Test. Applicants to the Graduate Schools of Biology, Chemistry and Mathematics must take the Graduate Record Examination (G.R.E.).

Applicants must write directly to Educational Testing Service, Princeton, New Jersey 08540 to make arrangements to take the G.R.E. and the A.T.G.S.B. The G.R.E. will be given on January 16, February 27, April 24, June 19, October 23, December 11, 1971. In 1972, the G.R.E. will be offered on January 15, February 26, April 22 and June 17. The A.T.G.S.B. will be administered on February 6, April 3, June 26 and August 14, 1971.

The Miller Analogies Test will be administered at Loyola University prior to all sessions. The test is scheduled for May 8, 1971 for applicants to summer

school. It will be given again on August 7, 1971 prior to the fall semester and on December 18, 1971 for the spring semester, 1972. Please contact the Graduate Office to place your name on the testing list.

3. The applicant must have two copies of each transcript of previous academic work sent to the Chairman of the Graduate Council, Box 87, Loyola University. These transcripts are not returnable.

4. A non-refundable application fee of \$15.00 is charged for making application and must accompany an application for admission. Applicants who are neither natives nor residents of the United States must send an admissions deposit of \$100.00 upon acceptance to the Graduate School office. Applicants desiring campus housing must send a \$50.00 housing deposit to the Director of Housing. These deposits are not refundable, but are credited to the student's account in the office of Finance, and the amount is deducted from the expenses for the first semester in which the student matriculates.

ACADEMIC REQUIREMENTS FOR ADMISSION

A candidate for admission must present as proof of his preparation for graduate study the following: transcripts attesting to a bachelor's degree, normally in the appropriate field for his graduate work, those nationally standardized test scores deemed appropriate by the major department, and at least three letters of recommendation by professionals in the field who can attest to the applicant's professional competence.

In addition, the individual programs have further requirements. The applicant should consult the program headings in this bulletin, beginning on page 39, very closely for further requirements.

Interviews are required by some programs, and should be scheduled by the applicant when at all possible in all programs.

ADMISSION AS A SPECIAL STUDENT

Students already possessing a Master's Degree may be admitted to the programs in Education and Music Education for further coursework as out-of-course students.

The Graduate Council approving, the appropriate program may admit on a provisional basis students not meeting the academic standards for admission outlined above.

All applicants, regardless of their status, must submit the information required in the section on academic requirements for admission.

EARLY ADMISSION

The programs of Music Education and Music will admit Loyola undergraduate students who meet all of the academic requirements for admission except a degree on a provisional basis provided they meet the following *additional* requirements: they must have a "B" average or better in their upper division major work; they must not lack more than six hours for their bachelor's degree. Such students may schedule a total of six hours of graduate work, and their schedule in any one semester of credit and noncredit courses should not exceed twelve semester hours.

FOREIGN STUDENT ADMISSION

Foreign students who desire to enter Loyola must comply with the basic

admission requirements established. In addition these applicants must satisfy all provisions of the Immigration Act. Students must be quite proficient in English since Loyola does not offer special courses in English for foreign students.

The applicant whose primary language is not English must show a proficiency in English adequate for graduate level study by taking an appropriate standardized test or by a personal interview. For information on the Test of English as a Foreign Language (TOEFL), write directly to: Educational Testing Service, Princeton, New Jersey 08540.

TRANSIENT AND SUMMER STUDENTS

The graduate divisions will accept transient students, both in the summer and in the regular year. Such students must secure advance permission from their graduate dean or director to register for courses at Loyola, together with formal proof of their graduate status. An application must be filed in the same manner as regular graduate students. Admission as a transient student does not constitute admission to the program. Students admitted as transient must fulfill all academic requirements for admission if they wish to work towards a degree at Loyola. Such applicants may have two courses (six semester hours of work) accepted by Loyola from their previous graduate institution. They should petition to the graduate studies committee of their prospective program after they have been admitted. Students applying in the Master of Science Teaching programs may have up to eight semester hours accepted.

Determination of advanced standing is at the discretion of the individual graduate studies committee.



Student Expenses

All students are required to pay full tuition, fees, etc., at the time of registration and on the days assigned. A student has not officially completed registration until having properly satisfied his financial obligations. If he does not complete his registration during the assigned time, the student must pay a late registration fee. Resident students are required to pay room and board on the day of registration.

The university reserves the right to change, with due notice, any of the expenses listed and to withhold statements of honorable dismissal, grade reports, transcript of record, diploma, etc., until all indebtedness to the University has been discharged or until satisfactory arrangements have been made with the Vice President for Business and Finance. Also, no student will be allowed to register subsequently as long as his prior financial indebtedness has not been satisfied. Exceptions to regulations regarding university charges will be made only by the President of the University.

Students are encouraged to make payments by check, money order, etc., made payable to Loyola University. Cash transactions are discouraged.

Summary of annual expenses:

Application:

Application Fee (not refundable)	\$ 15.00
Acceptance Deposit (not refundable but applicable to 1st sem. tuition)	100.00
<i>(Foreign Students only)</i>	

Tuition:

Full time or part time—per semester hour	\$ 38.00
Full time—Ph.D. in chemistry, per semester	\$1200.00

General fees:

University fee—full time students (per semester)	15.00
University fee—part time students (per semester)	7.50
Student Center fee—full time students (per semester)	10.00
Student Center fee—part time students (per semester)	5.00

Housing expenses:

Room Guarantee Deposit (not refundable but applicable to Room and Board)	50.00
Room and Board (per academic year)	
Men (range)	\$ 990.00-1090.00
Women (range)	\$1050.00-1300.00
Resident students fees	
Damage and breakage (refundable)	25.00
Key deposit (refundable)	2.00

Contingent fees:

Late Registration Fee	20.00
Registration Fee for Degree only (per sem.)	25.00
Subject Change Fee (per course)	5.00
Early/Late Examination fee	10.00
Additional Transcript fee	2.00
Student Health Insurance (approximately)	23.00

Fees for seniors:

Graduation fee	25.00
Cost of Cap and Gown—Bachelors	9.50
Masters	11.00
Doctors	17.00

For purposes of fee determination, a part time graduate or professional student is defined as taking less than nine semester hours.

The Student Center Fee is to assist in the operation of the Danna Center (the University Center for student activities).

The University Fee is designed to help defray the cost of libraries, laboratories, student placement, student health services, etc.

The Early/Late Examination Fee will be charged for any examination taken on other than the assigned date, no matter what the excuse. No early/late examination will be given without the written permission of the Dean.

The Transcript Fee. For all transcripts sent after the first one there is a \$2.00 fee. However, when a student requests more than five transcripts at one time he is charged \$2.00 for the first copy and fifty cents for each additional one.

MONTHLY PAYMENTS

Although Loyola University has no monthly payment plan of its own, students may subscribe to one of two plans offered by Education Funds, Inc.

The first plan is a deferred payment revolving credit plan whereby the parent or student contracts with E.F.I. to finance all or a part of his annual expenses and repay the amount borrowed on a twelve month basis.

The second plan is a prepaid plan which enables the parent or student to budget payment of required charges before the school year begins. Payments begin five months prior to Fall registration and continue for ten months.

Descriptive literature concerning these plans will be sent upon request directed to the Finance Office.

Students are advised to make all arrangements sufficiently in advance so that E.F.I. may forward payment to the Finance Office before registration. E.F.I. will not accept contracts for less than \$1,000.

REFUND POLICY

1. *Tuition:* Students who withdraw from the university are entitled to a refund of a percentage of their tuition. The date of receipt of the withdrawal notice by the Registrar will determine the amount of tuition refund. No refunds are made when a student is suspended or dismissed for academic or disciplinary reasons. Only tuition is refundable. Refunds are made on the following basis:

- a. If formal notice is received within one week of the beginning of the semester refund of 80% of tuition is made.
- b. If formal notice is received within three weeks of the beginning of the semester a refund of 60% of tuition is made.
- c. If formal notice is received within five weeks of the beginning of the semester a refund of 40% of tuition is made.
- d. No refunds are allowed after the fifth week of classes.

2. *Room and Board:* Students boarding in university dormitories who are dismissed or suspended from school during the semester are not entitled to any refund.

Students in good standing who voluntarily withdraw from the university during the semester are not entitled to any refund on the cost of their room. They may receive a refund on board, prorated from the date of withdrawal.

Refunds are a percentage of the total tuition payable in the semester in which the student withdraws, not a percent of the amount paid by the student.

Students entering the Armed Services will be given a full tuition refund regardless of the elapsed time since the beginning of the semester.



STUDENT LIFE



Housing

POLICY FOR OUT OF TOWN STUDENTS:

Full time graduate men and women students may reside in university housing. Requests for information should be directed by men to the Director of Men's Housing and by women to the Directress of Women's Housing.

RESERVATIONS:

The step toward a reservation is to return all information requested by the Admissions Office. Eligible students are notified by the Graduate Council that \$50 deposit will be required for reservations. Fifty dollars of this deposit applies to the student's housing charges and is not refundable if the student cancels his housing. Resident students already attending the university must have their \$50 housing deposit turned in to the Housing Office prior to April 15 for room reservations for the following fall semester. The student must have a signed contract along with all required housing forms, i.e., a medical form, before his housing reservation will be honored.

MEN:

Biever Hall is a six story dormitory on the north side of the campus. This structure is completely air conditioned and centrally heated and houses 410. Rooms are for double occupancy and are equipped with a phone. Each student has a private locker, single bed, chest of drawers, and desk. A laundry pick-up station which also dry cleans is housed on the ground level. Mail boxes, and washing and drying facilities are also provided. Jesuit priests are available for counselling. All supervision is under the Head Resident and his assistants who are student monitors.

OTHER STUDENT HOUSING FOR MEN:

The university maintains other residences for men. Rooms are single or double. Laundry, social and recreational facilities are housed in each hall.

CONTRACT MEALS:

Both men and women residents must contract for room and board. Students eat the meals included on their meal contract calendar in a special contract dining room of Danna Center. The meal contract charges exclude holidays.

Requests for any exception to the policy must be made in writing to the Dean of Men or the Dean of Women.

WOMEN:

Buddig Hall is a twelve story dormitory for women on campus. Capacity of this dormitory is 420. Each suite has individual controls for central heat and air conditioning. These suites house two rooms sharing bath facilities. Each room has its private wash basin and cosmetic stand, 2 single beds, 2 desks, 2 chests of drawers, a bulletin board, book shelves, and a phone. Laundry facilities with washers and dryers are located on the ground floor. A linen and dry cleaning pick-up rental station plus many other conveniences are housed in the building. A limited number of single rooms are available with private bath facilities. Cost will vary with accommodations received.

COST:

Students residing on campus are on a room and board plan. Charges, therefore, cover room and board and are due on a semester basis at the time of registration. Charges may vary with desired accommodations and services or availability of housing facilities.

Men	\$ 990.00-1090.00 (Sept.-May)
Women	\$1050.00-1300.00 (Sept.-May)

The above cost does not include cost of the University Health Insurance program (required of all full time students if not waived), nor the \$25 deposit for damage and the \$2 key deposit. Room charges exclude Christmas holidays as per the university calendar. The university will utilize rooms for guests and special seminars during the Christmas holidays.

The \$25 deposit for damages and \$2 key deposit is payable at the time of occupancy. This deposit will be retained by the Finance Office and drawn upon by the housing office when necessary. The full amount of the deposit or the balance will be refunded when the student officially withdraws or graduates.

The \$50 room deposit sent through the Admissions Office is credited to the student's room and board charges. It is not refundable if the student cancels his housing request.



Financial Aid

Requests for all financial aid should be directed to the Financial Aid Office.

LOANS

Louisiana Higher Education Assistance Loan—The State of Louisiana will agree to guarantee loans negotiated between specific banks and full time college students who are legal residents of Louisiana. The loan is limited to

\$1500 per year and a \$7,500 aggregate. Interest is paid by the state while the student is still in school. The interests is 7% and will be paid by the commission while the student is in school, if the family's adjusted income is less than \$15,000.

National Defense Student Loan Program—This program has been instituted by the Federal Government for the purpose of making long term, low-interest loans to qualified students. The maximum amount a student may borrow is \$1500 in an academic year and the total is limited to \$6000. The amount borrowed is determined by the university. The loan begins to accrue 3% interest nine months after the student leaves school. The loan matures ten years after this termination.

U.S. Loan Program for Cuban Refugees—This is a program limited to students who cannot get help from home for their education in the United States. Three percent interest begins to accrue 12 months after the borrower ceases to be a full-time student. The loan must be repaid within a period of ten years.

Out-of-State Loans—Most states have state loan programs for residents of their state. Some are handled by the state agency and some are handled by private agencies for the state. Students interested in these loans should check with their State Office of Education or their local bank.

PLACEMENT OFFICE—STUDENT EMPLOYMENT

This office serves as a focal point for bringing together students who are interested in employment after graduation and employers seeking this talent. Each year interviewers from a wide range of national and local concerns are brought on campus. Also included in this service is a job-finding bureau for part time and summer employment.



Services

HEALTH SERVICE

Loyola University maintains a medical service on the campus for students, both resident and non-resident, faculty and staff.

It is operated under the following rules:

1. Resident students entering Loyola for the first time or re-entering the University must undergo a physical examination by their personal physician, before their registration is officially completed. A signed medical release form is absolutely necessary for resident students. Mandatory health insurance is required for resident students and is optional for non-resident students.

2. The University may also require physical examinations at other designated times during the student's stay.

3. A student may be refused admission to the University on the recommendation of the medical examiners. This board also may request a student already enrolled to withdraw.

4. A student may see the University Physician during his office hours on the campus, Monday through Friday.

5. Patients confined on the campus will be visited by the University Physician or by the physician of the student's choice at his own expense.

6. Medicines or hospitalization are not provided by the University's health service.

7. Full time students are required to participate in the Loyola Student Health Insurance Program or waive it by completion of a waiver form.

COUNSELING BUREAU

The University has a staff of Clinical and Counseling Psychologists who are available to the students for professional testing and counseling. The aim of the Student Counseling Bureau is to aid the student in any vocational, personality or social adjustment problems that may arise during the time he or she is enrolled at Loyola.

ACADEMIC COUNSELING

Each student at Loyola is assigned an academic adviser, a fulltime faculty member who will assist the student in planning his schedule, and who will discuss with him the problems he may encounter in his academic career. The student should see his adviser at least twice a semester.

SPIRITUAL LIFE

The University appoints a priest together with needed assistants to the post of University Chaplain for all the students. He is at their disposal at all times to guide, counsel and advise. Students will find him ready to assist them in their spiritual, personal and individual problems. He is responsible for all the organized spiritual activities on the campus.

RETREATS

There are no obligatory retreats at Loyola, but all students are encouraged to take part in one of the three types of retreats offered. The traditional closed retreats at one of the near-by retreat houses stress personal meditation and silence. A second type, called "An Experience in Christian Community" is offered to Loyola students and students of other colleges in the area. This type is made in a group of thirty to forty and stresses group discussions and activity. The third type is made in a private home with a group of ten to twelve. It stresses both personal meditation and group discussion. Besides these retreats, days of recollection are offered from time to time during the year.

SPIRITUAL ORGANIZATIONS

Chi Rho Mu is the primary spiritual organization on the campus. Its aim is to help students seek out and find their Christian response in the context of college life in the post-Vatican II Church.

INCAP, *the Inter-Collegiate Community Action Program* is composed of students from colleges, universities and nursing schools in New Orleans. The students work through and with existing agencies and institutions in the New Orleans area in varied volunteer capacities such as tutoring, supervising recreation, taking children on cultural field trips, etc.



Organizations

STUDENT COUNCIL

The Student Council consists of forty-two members, representing the College of Arts and Sciences, the Schools of Law and Dentistry, the Colleges of Music, and Business Administration and City College. These students are selected by the student body with the approval of the Vice-President for Student Affairs. The Council serves to unify student thought and action. It conducts general meetings and elections, sponsors and manages interclass contests and leads and directs student activities.

STUDENT UNION

The Student Union, the largest organization on campus, consists of over 150 selected students whose purpose is to promote and coordinate the various activities in the University's Danna Student Center. The Student Union supplements and implements the academic curriculum of the university by fulfilling its three main programming functions: social, cultural and recreational. Eight committees, in addition to the five officers of the Union, comprise the Student Union Governing Board. The committees are Fine Arts, Current Events, Dance and Entertainment, Hospitality, Personnel, Publicity, Public Relations, and Recreation.

HONORARY FRATERNITIES AND ORGANIZATIONS

In order to give recognition and encouragement to high standards of scholarship among the students, several honorary scholastic fraternities and organizations have been established on campus for all students.

Beta Alpha Psi—The purposes of this national, professional and honorary fraternity are: to stimulate interest and cooperation in accounting; to encourage and foster the ideal of service as the basis of the accounting profession; to promote the study of accountancy and its highest ethical standards; to act as a medium between professional men, instructors, students and others who are interested in the development of the study or profession of accountancy; to develop high moral, scholastic and professional attainments in its members; and to encourage cordial intercourse among its members and the professional generally. Accounting majors of junior standing with a 3.00 quality point average in four completed accounting courses and a 2.50 average in all other subjects shall be considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.

Beta Gamma Sigma—The purposes of this national honor society are: to encourage and reward scholarship and accomplishment among the students of business administration; to promote the advancement of education in the art and science of business and to foster integrity in the conduct of business operation. Only seniors who rank in the upper tenth of their graduating class and juniors among the highest four percent of their class are considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.

Kappa Delta Pi—Kappa Delta Pi is an honor society in education. Here at Loyola, Zeta Rho Chapter, which was established on October 8, 1949, taps those undergraduates who achieve a quality point average of 3.3 and graduate students who earn a quality point average of 3.5. Kappa Delta Pi has as its journal, THE EDUCATIONAL FORUM, which is one of the leading scholarly journals in education. Kappa Delta Pi's main objective is "to encourage high professional, intellectual and personal standards and to recognize outstanding contributions to education."

Rho Phi Theta—Rho Phi Theta is a mathematics fraternity. Its objectives are identical with those of Pi Mu Epsilon, the National Honors Mathematics Fraternity: the promotion of scholarly activity in mathematics among students in academic institutions and among the staffs of qualified non-academic institutions.

Tri Beta—The Eta Lambda chapter of Tri Beta, national honor biology Society, was established at Loyola on March 24, 1956. It unites biology, pre-medical, pre-pharmacy, pre-dental, and medical technology students into a single group who possess a common interest in biology. Its purpose is to instill in its members a desire for scientific knowledge, research and truth.

SERVICE ORGANIZATIONS

Alpha Pi Omicron—Organized in September 1938, Alpha Pi Omicron, service fraternity, provides an organized means by which the male students of Loyola may render service to the university, its faculty, and student body. Among its many activities are the publishing of the Loyola University Directory, distributed free of charge to the entire university, ushering at forums and commencement exercises.

Lambda Sigma Lambda—Lambda Sigma Lambda, service sorority, was organized to serve the university, its faculty and student body in all ways possible and in so doing to instill in its members the virtues of generosity, dependability, initiative, leadership, loyalty and cooperation. Founded on October 16, 1941, the sorority places itself at the disposal of administrative offices and student organizations to aid them in any way whatsoever.

STUDENT PUBLICATIONS

Maroon—the University newspaper, the *Maroon*, is published about 25 times during the year by a student staff under the direction of the faculty of the Department of Journalism. Positions on the editorial and business staffs are open to all students of the university.

University Directory—Alpha Pi Omicron, service fraternity, presents to the faculty and students the *University Directory*. Contained therein is the name, address and telephone number of every member of the faculty, student body, and staff of the university. This book is presented free of cost and edited entirely by members of APO.

The Student Handbook or "L" Book was first published as an aid and guide for Freshmen. While maintaining this purpose, it is now presented annually by the Student Council as a reminder to upperclassmen of the ideals, traditions, and regulations of Loyola.

DANNA CENTER

Serving as Loyola's community center, Danna Center provides a convenient

and inviting place to meet friends, relax and recreate. In addition to dining, recreation and meeting facilities the Center houses a rathskeller, bookstore, post office, barber shop, and beauty salon.

The offices of the Vice-President for Student Affairs, the Dean of Men, Dean of Women, the Chaplain and Counseling Bureau are located in the Center as well as the office of the Union Director, Financial Aid Officer, Placement Director, Student Council, Student Union and other student organizations.

The Communications Complex, located in the lower level of the Center, includes the University's closed circuit television station and campus radio station WLDC. WLDC is a closed circuit radio station which is student run under the sponsorship of the Communications Department. The station serves the campus of Loyola University and Dominican College, is a member of the Associated Press, the Intercollegiate Broadcast System, and the American Broadcasting Company contemporary radio network. All interested students are eligible to work on the radio station.

I.D. CARDS

Each student must have an I.D. Card on his person at all times and must present it to University officials on demand (See p. 10). Usage by students other than to whom issued is subject to fine and/or disciplinary action. Lost I.D. Cards must be reported to the Student Union Director. Replacements may be obtained from his office. The charge for each replacement will be \$3.



Special Facilities and Programs

LIBRARY

The university libraries house a quarter of a million volumes, and hold subscriptions to over 1500 periodicals and journals. In addition to the main library, there are specialized libraries for music, law, and science in the academic buildings housing those disciplines. The library, which is on the open stacks system, also offers microform. Music listening facilities are available through the Music Library.

COMPUTER CENTER

The University Computer Center offers a full range of services through its medium scale Control Data 3300 computer system, and a small scale IBM 1620 computer. The CDC 3300 is operated on a closed-shop basis providing rapid turn-around for student, faculty, and administrative users. The IBM 1620 is run on an open-shop basis making available "hands-on" experience. Qualified personnel are available to assist users of either system.

THE NEW ORLEANS CONSORTIUM

The New Orleans Consortium is a new cooperative effort among Loyola and Xavier Universities and St. Mary's Dominican College to strengthen educational opportunities. Begun in September 1967 it has made possible

the sharing of curriculum, libraries and cultural events. Under Consortium provisions, Loyola students may supplement their schedules with courses offered at Xavier or Dominican when the courses are not offered at Loyola. These may be credited towards a degree at Loyola.

The purpose of the Consortium is to provide students with a greater variety of courses as well as better library resources. By eliminating duplication in the libraries, a much wider range of material is therefore offered. In addition, combined efforts will increase the quantity as well as quality of cultural events for the colleges. Further information regarding the Consortium may be obtained from the student's dean.

THE INSTITUTE OF HUMAN RELATIONS

The Institute of Human Relations is a government-funded arm of the university that operates programs in three divisions—*The Inter-American Center*, *the Labor-Management Center* and *The Social Order Center*.

The Inter-American Center, located in Danna Center, has trained approximately 700 young Latin Americans in democratic leadership skills. The center's six-week course has inspired some 800 self-help projects led by the participants in their villages, towns and areas.

The Labor-Management Center promotes good will and mutual cooperation through programs in collective bargaining, economics and industrial ethics.

THE INSTITUTE OF POLITICS

The Institute of Politics was formed at Loyola in June, 1968, and trains young community leaders in practical politics. Its program is geared to the development of new political leadership in New Orleans, Louisiana and the South. The institute educates selected young men and women in the practice and practicalities of politics, through a recognition of the professional character of politics and the need for broader understanding and training in politics. Meeting weekly at night for nine-month periods, participants represent a broad cross-section of the city, geographically and professionally. Approximately 16 participants per course study voting patterns, issues and problems, organizing and conducting political campaigns, the uses of television and advertising, political polling and campaign financing. Speakers represent local, state and national levels of politics.



UNIVERSITY REGULATIONS

KNOWLEDGE OF REGULATIONS

Students are held responsible for compliance with the several regulations of the university and hence should familiarize themselves with the provisions of this bulletin and with the Student Handbook distributed by the Vice President for Student Affairs.

GRADES

All work is graded by letters, interpreted as follows:

- A Excellent (4 quality points per credit hour)
- B Good (3 quality points per credit hour)
- C Average (2 quality points per credit hour)
- F Failure (no quality points per credit hour)
- I Incomplete This grade is to be assigned only when the instructor has been presented with serious and compelling reasons why the student should be allowed to complete the course at a later date. These reasons are customarily medical. The I grade is not an automatic extension.
- W Withdrawal. Any student withdrawing from a course will be automatically assigned a W grade. The instructors concerned will then assign letter grades of I or P if the student is passing, and F if he is failing.

GRADE REPORTS

A report of the grades made by a student in his scheduled subjects is sent to the student at the middle and end of each semester. Copies of these reports are also sent to the student's dean and faculty adviser. If the student requests it, the Registrar's Office will also send a copy of the grades to the student's parents, guardian, or sponsor.

SCHEDULE CHANGES

A student desiring to drop a scheduled course or to add another course after his semester's schedule has been filed in the Registrar's Office should consult with his Adviser or the Chairman of the Department in which he is registered from whom he should obtain written permission to revise his schedule. This written permission should be presented by the student to the Dean for approval. Permission to add a course or change from one section to another will not be granted after the date indicated in the Session Calendar as the last day for schedule adjustments.

Students remaining in the University who officially drop one or more courses prior to the date designated in the Session Calendar as the last day to drop a course will *not* have grades recorded in those courses.

Those students who withdraw officially from the University prior to the

last day for dropping courses will not have grades recorded in those courses for which they were registered at time of withdrawal.

All students who withdraw officially from the University after the last day for dropping courses will be assigned a grade for each course for which they were registered at the time of withdrawal. If the grade is passing at the time of withdrawal, a grade of WP will be assigned. If the grade is failing, a grade of WF will be assigned which shall indicate failure in the course.

STANDING

To remain in good standing as a graduate student, a student must maintain a 3.0 average in all graduate work attempted at Loyola.

The directors of the graduate programs may withdraw the candidacy of any student not maintaining a 3.0 average in his first twelve hours of graduate work at Loyola. Only students who have completed their first 12 hours with a 3.0 average are classified graduate students, and admission is provisional until that point.

The student should be aware that in certain programs, notably Business Administration, the student may be denied further registration if his performance indicates that a satisfactory average cannot be achieved within 6 hours of work.

WITHDRAWAL FROM THE UNIVERSITY

A student who withdraws from the University during a semester before taking the final examination of the semester forfeits all credit for work done in that semester.

To withdraw officially from the University a student must:

- 1) Obtain withdrawal forms from the Office of the Registrar.
- 2) Obtain signatures of designated officials on withdrawal forms. (These forms will not be signed until the student has cleared all obligations to the University.)
- 3) Resident students must officially withdraw by obtaining clearance through the housing office.

Withdrawal is not complete or official until all signatures have been obtained and forms are returned to the Office of the Registrar.

Those students who withdraw officially from the University *prior* to mid-semester grades, will not have grades recorded in those courses for which they were registered at the time of withdrawal.

All students who withdraw officially from the University *after* the mid-semester grades will be assigned a grade for each course for which they were registered at the time of withdrawal. If the grade is passing at the time of withdrawal a grade of WP will be assigned. If the grade is failing, a grade of WF will be assigned which shall indicate a failure in the course.

Students are reminded that they must complete official withdrawal from the University before the termination of the semester in which they have registered.

In the case of a student who is called to active duty in any branch of the armed services before the date for final examinations in the semester, exceptions to the formal regulations have been made.

The student being called to active duty should consult with his chairman and the Academic Vice-President in order that his status at the University will not be jeopardized.

DISMISSAL

Although dismissal is usually a function of the student's inability to remove himself from academic probation, all decisions regarding dismissal are made on an individual basis, and the university, through duly constituted judicial bodies, or through the deans, has the authority to dismiss a student whose conduct, attitude, or performance is in serious opposition to the aim of the university or to the spiritual, moral, or intellectual welfare of the university community.

LEAVE OF ABSENCE

The individual departments may approve leaves of absence while a student is enrolled in graduate work at Loyola. Such students do not have to apply for readmission, although they should seek prior approval of any work that they would like to have accepted for credit by Loyola. Such work is subject to the provisions discussed in the section on transient students on page 25.

GENERAL ELIGIBILITY FOR DEGREES

To be a candidate for a Masters degree, a student must have completed a minimum of thirty hours of graduate work with a 3.0 average, except in Biological Sciences, where he must have completed twenty-four hours with a 3.0 average.

He must have been in residence at the University for the equivalent of one academic year. Certain departments may accept two summers as the equivalent of one academic year, notably Education and Music. All graduate work must have been completed within six years for all departments except Business Administration, where such work should be completed within four years. Business students, however, may petition no more than twice for an extension of this time limit.

Students must have demonstrated to their major departments that they have an understanding of research and research methodology, and a thorough understanding of the subject matter, bibliography, and theory of their major field. At Loyola this demonstration takes the form of either comprehensive examinations, a thesis, or both, at the option of the department.

Additionally, the student must have filed for graduation at the appropriate times noted in the Academic Calendar, and he must have satisfied all financial obligations to the University.

ADDITIONAL REQUIREMENTS FOR DEGREES

The student should consult the program headings of this bulletin for additional requirements set by the individual departments.



BIOLOGICAL SCIENCES

Chairman: John H. Mullahy, S.J., Ph.D.;

Professors: Letitia Beard, Kamel Khalaf, Walter Moore, John Mullahy, S.J.;

Associate Professors: John McHale, Jagdish Upadhyay;

Assistant Professors: Roland Lesseps, S.J.

PURPOSE

The graduate program in the Biological Sciences is designed to provide a broad training for those who aspire to be teachers and for those who wish to improve their biological background by additional subject matter. The studies in this program provide an excellent preparation for advanced research and doctorate work. The program provides facilities for advanced courses in each of the three branches of the Department of Biological Sciences. At the present time the program leads to the Master of Science degree in Biological Sciences.

ADMISSION

Any student who has a Bachelor's degree from a recognized college and has undergraduate training in general biology, general bacteriology, and organic chemistry may qualify for the Master of Science degree in Biological Sciences. Applicants are obliged to take both the general section and advanced section of the Graduate Record Examination and to submit the results to the Graduate School before they can be accepted.

Candidates must demonstrate, by written examination if necessary, that they have a reading knowledge of at least one modern foreign language. In all cases the Executive Committee of the Department of Biological Sciences will determine this necessity.

COURSE REQUIREMENTS

All students are obliged to complete at least one graduate course in each of the three main divisions of the department; viz, Botany, Zoology, and Microbiology. Other courses for a total of 24 hours are at the students' discretion, but it should be noted that all advanced courses in microbiology require at least one course in biochemistry as a prerequisite.

All graduate students are required to participate actively in the graduate seminar each semester that they are enrolled in the Graduate Division. This applies to both enrollment for course work and for thesis research.

The Master of Science degree in Biological Sciences requires twenty-four hours of course work and a thesis. A total point ratio of 3.00 is required for course work.

Along with the course requirements noted above, the candidate must pre-

sent an acceptable thesis based at least partially on original research. This thesis must be completed and accepted by the Executive Committee of the Department one month before the date of graduation.

All graduate students are expected to gain some supervised teaching experience as part of their preparation for the Master of Science degree.



Courses for Qualified Seniors and Graduate Students

Bl. 403—Cytology.

A study of the morphological, physiological, and biochemical properties of component parts of animal and plant cells. Prerequisite: General Biology. 4 sem. hrs.

Bl. 404—Phycology

A survey of the algae including both marine and freshwater forms. Prerequisite: General Botany. 4 sem. hrs.

Bl. 407—Limnology

A study of the physical, chemical, and biological factors determining biological productivity in inland waters. Field study of local lakes and streams gives the student experience in the use of methods and instruments for environmental analysis. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

Bl. 408—Entomology

The taxonomy, life histories and general ecological relationships of the insects in general and especially of South Louisiana. Two hours lecture and four hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

Bl. 409—Bio-Ecology

The relationships of animals to each other, to plants, and to the physical and chemical factors of the environment. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

Bl. 410—Field Zoology

The taxonomy, life histories and general ecological relationships of the common animals (exclusive of the terrestrial insects, the birds, and the mammals) of South Louisiana and the New Orleans area particularly. Two hours lecture and six hours laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

Bl. 411—General Parasitology

A study of parasites in relation to disease. The various types of parasites, their life histories, and the conditions which they cause will be considered. Prerequisite: General Biology. 4 sem. hrs.

Bl. 412—Physiology of the Bacteria

Lectures, assigned reading, discussion and laboratory exercises dealing with the chemistry and physiology of microbial cells. Prerequisite: Bl. 301 and bio-chemistry. 4 sem. hrs.

Bl. 413—Advanced Genetics

Lectures, assigned reading, discussions and laboratory dealing with the molecular, organismic and population aspects of modern genetics. Prerequisite: Bl 312 or its equivalent. 4 sem. hrs.

Bl. 415-16—Advanced General Physiology

The physiology and biochemistry of cells and the comparative physiology of muscular, nervous and circulatory systems. Bio-electric activities, metabolic cycles, and internal secretions will be covered. Prerequisite: Bl. 303. 8 sem. hrs.

Bl. 417—Endocrinology

General consideration of the organs of internal secretion. Phylogeny, embryology, microscopic anatomy and physiology. 4 sem. hrs.

Bl. 418—Advanced Endocrinology

Recent advances in the biology of the organs of internal secretion. Lectures, conferences and laboratory work. 4 sem. hrs.

Bl. 420—Plant Anatomy

A consideration of the structure and development of seed plants (Primarily Angiosperms). Reference will be made to the relationships of anatomy and developmental patterns to the physiology and morphogenesis of the organism. The Plant Anatomy seminar will constitute a portion of this course. Prerequisite: General Botany. 4 sem. hrs.

Bl. 422—General Virology

The virus as a biological entity; physical and chemical properties of virus particles; representative animal, plant and bacterial viruses are considered. The rickettsiae are briefly treated. Prerequisite: Bacteriology and Biochemistry. 4 sem. hrs.

Bl. 423—Mycology

A survey of the fungi with emphasis on form and structure. Prerequisite: Bl 301. 4 sem. hrs.

Bl. 424—Techniques in Bacteriology

Consideration and application of current techniques used in bacterial physiology. Qualitative and quantitative determination of metabolites are examined as are methods for studying mutants, respiration, and enzymes. Prerequisite: Bl 301 and Biochemistry. 4 sem. hrs.

Bl. 427—Physiology of the Fungi

A study of the chemical activities of fungi as related to their nutrition growth, reproduction and fermentative ability. Emphasis will be placed on fungi important in industry and agriculture. 4 sem. hrs.

Bl. 428—Plant Physiology

Higher plants will be the principal object of study, with regard to their growth processes, water relations, and photosynthetic activities. The laboratory will illustrate modern techniques of investigation as well as the principles of the discipline involved. A weekly meeting devoted to a discussion of contemporary literature will be a part of the course. Prerequisite: General Biology and Organic Chemistry. 4 sem. hrs.

Bl. 429—Medical Entomology

A study of the arthropod groups of medical importance; their identification, general biology and life cycles; factors affecting man and domestic animals and control measures. Prerequisite: General Entomology. 4 sem. hrs.

Bl. 433—Zoology for Teachers

A teacher-training and review course for those engaged in, or preparing for, teaching high school biology. Emphasis is placed on the collection and preparation of local zoological materials for classroom use. Limited to graduate students in education. Prerequisite: General Zoology. 4 sem. hrs.

Bl. 434—Developmental Biology

Lectures, discussions and laboratory work, including original research in such areas

of developmental biology as fertilization, nuclear-cytoplasmic interaction during development, biochemical development and developmental genetics. 4 sem. hrs.

Bl. 435—Morphogenesis

The development of the shape and pattern of plants and animals will be studied. Special emphasis will be given to the morphogenetic movements of cells and tissues during development. Current theories advanced to explain these movements will be examined and experiments to test these theories will be performed. Original research in this area will be taken up in the laboratory. 4 sem. hrs.

Bl. 444-445—Graduate Seminar

Prerequisite—advanced standing.

2 sem. hrs.

Bl. 453—Radiation Biology

A survey of the nature, measurement, and effect of ionizing radiations in biological systems. Designed to acquaint the beginner with theory and methods of use of radiation as a research tool. Geiger counter techniques will be used primarily; absorption and half-life experiments, tracer methods, biological uptake and distribution, isotope dilutions and similar topics will be covered in lectures and in laboratory. Prerequisite: Discretion of professor in charge of the course. 4 sem. hrs.

Bl. 501-502—Research in Bacteriology

4 sem. hrs.

Bl. 503-504—Research in Cytology

4 sem. hrs.

Bl. 505-506—Research in Plant Anatomy

4 sem. hrs.

Bl. 507-508—Research in Animal Ecology

4 sem. hrs.

Bl. 511-512—Research in Parasitology

4 sem. hrs.

Bl. 515-516—Research in Physiology

4 sem. hrs.

Bl. 512-522—Research in Virology

4 sem. hrs.

Bl. 529-530—Research in Entomology

4 sem. hrs.

Bl. 534-535—Research in Developmental Biology

4 sem. hrs.





COLLEGE OF BUSINESS ADMINISTRATION

Dean: G. Ralph Smith, Ph.D.;

Professors: Allan Boudreaux, Rudolf Coper, Irving Fosberg, G. Wallace Leftwich, Arthur Rayhawk, Jacques Yenni, S.J.;

Associate Professors: Margaret Alumkal, Donald Losman;

Assistant Professors: Shu-Jan Liang, Rao Tatikonda;

Lecturer: Gerald Gaston.

PURPOSES

The Master in Business Administration program is addressed to the education of qualified students in order that they may assume increased responsibilities and may initiate well predicated research into business processes.

Graduates of the program will be prepared to direct and develop enterprises whose objectives and accomplishments are consonant with the ideals and increasing complexity of Western Culture.

It is intended also to prepare individuals to become teachers at colleges and universities whose curricula are designed to develop leaders with an appreciation of the functions and role of business in maintaining a free enterprise society.

The program is also of sufficient breadth and depth to provide a foundation for persons seeking more advanced degrees.

ADMISSION

Admission to the M.B.A. program is based upon the candidate's having a baccalaureate degree from a recognized institution, an undergraduate record of "B" or better, and personal qualifications of sound character and intellectual attainment. Applicants having less than a "B" undergraduate record may be granted conditional admission.

Additionally, the candidate must achieve a satisfactory score on the Admission Test for Graduate Study in Business.

The status as a full-time student is determined by the Director. It will reflect whether the candidate is registered in the foundation courses or courses open only to graduate students. Regardless of the type of course enrollment all candidates are considered as graduate students.

Part-time students will ordinarily be limited to a maximum of six graduate hours during any one semester. Part-time candidates enrolling in foundation courses may exceed this semester hour limitation with the approval of the Director.

ATTENDANCE

If the professor of any graduate level course believes a candidate's record of attendance is such as to jeopardize the satisfactory completion of the course, the Director will notify the candidate in writing of this professorial belief.

Continued unexplained, unsatisfactory attendance will cause the Graduate Studies Committee to review the candidate's standing in the program.

CURRICULUM

The curriculum is designed to provide for possessors of baccalaureate degrees in business and in arts, sciences and engineering.

Candidates holding degrees in business usually may enter directly into a thirty hour program of graduate work.

All other candidates are required to complete foundation courses in accounting, economics, business law, quantitative methods, corporation finance, marketing and management. These courses are designated as the 400 series. The number of hours that a prospective student needs to satisfactorily complete in the 400 series will be determined by consultation with either the student's adviser or the Director of the M.B.A. program. The 400 series courses are open to selected undergraduates who may be planning to enter the M.B.A. program after earning their baccalaureate degree.

All candidates during the final thirty hours of work are required to complete fifteen semester hours of the following courses:

Acct. 512—Accounting and Information Systems

Eco. 500—National Income and Employment Analysis

Mg. 502—Managerial Economics

Q.M. 503—Selected Topics in Management Science *or*

Q.M. 504—Selected Problems in Management Science

The remaining fifteen hours may be selected from the courses which will provide professional competence in the area of a student's major interest. The functional fields are in accounting, economics, finance, management, quantitative methods, and marketing. Each candidate will select courses from no less than two of the functional fields.

The requisite number of course hours in the selected functional fields with any other electives is determined by the student only with the advice and consent of his advisor. No other program determination is acceptable.

COURSE REQUIREMENTS

Candidates completing foundation courses for entrance into graduate courses must meet the academic standards of the College of Business Administration. Courses numbered 500 or over are reserved exclusively for graduate students. No person not holding a baccalaureate degree from a recognized educational institution may register for credit in these courses at any time.

A comprehensive written examination covering the required and selected functional fields shall be passed by the candidate at the conclusion of the course work. Comprehensive examinations are scheduled regularly in April, July and December.

A candidate who is registered, at the time the examination is scheduled, for *no more* than his final six hours of course work may request permission to take the examination at one of the above times. Permission to take the examina-

tion at times other than those regularly scheduled must be sought through a petition submitted to the Graduate Studies Committee. The acceptance of the petition is reserved to this Committee solely. An oral examination may be required also at the discretion of the Graduate Studies Committee.

Application for this examination is to be filed with the Director within four weeks after the beginning of the semester in which the degree is sought.

If the degree is deferred pending another examination, an interval of one semester, not including a summer session, must elapse before another comprehensive examination may be taken.

The second examination for the Master's degree is final. A petition for a third examination will not be entertained.

The term examination is construed to mean the entire comprehensive. Individual parts not passed may be retaken at the discretion of the Graduate Studies Committee.

PETITIONS

All student communications to the Graduate Studies Committee should be prepared in consultation with the Director, on the appropriate petition form available from his office.

The petition should be used for seeking the waiver of any requirement of the Graduate Program or requesting review by the Graduate Studies Committee of any action taken by it or the Director relative to the petitioner.

CLASS MEETINGS

Classes in the 400 and 500 series meet for one session of two and one half hours duration each week. The instructor has the privilege of lengthening this period if he deems it necessary. Additional sessions may be required at his discretion.

AUDITING OF COURSES

Any person desiring to audit a graduate level course is charged the regular tuition. Permission must be secured from the Director.

Persons desiring to audit foundation courses are charged on the same basis as part-time students of the College of Business Administration. Permission of the Dean of the College of Business Administration is required.



Course Offerings

I. BEHAVIORAL SCIENCE

All courses in the 400 and 500 series are scheduled to begin no earlier than 6:15 p.m., Mondays through Fridays.

B.S. 500—Elements of Behavioral Sciences

A systematic study is made of the fundamental concepts and principles of sociology, psychology, and anthropology as they contribute to the understanding of business activities. 3 sem. hrs.

II. ACCOUNTING

Acc. 500—Contemporary Accounting Theory and Problems I

An analysis and evaluation is undertaken of currently acceptable accounting standards and conventions with emphasis placed upon pronouncements of authoritative groups. Contemporary problems are related to the application of these standards and conventions. 3 sem. hrs.

Acc. 501—Contemporary Accounting Theory and Problems II

Standards and techniques underlying the preparation of consolidated financial and operating statements are studied. Contemporary problems relating to consolidations are included. 3 sem. hrs.

Acc. 502—Advanced Auditing

Auditing techniques and procedures in relation to contemporary problems and acceptable auditing standards are studied. 3 sem. hrs.

Acc. 510—Research in Taxation

The methodology of research in Federal income taxation is examined. Emphasis is placed on applied research to tax problems. The intent is to develop research techniques and the ability to reach conclusions and to make recommendations predicated upon a synthesis of code, regulations, and court decisions. 3 sem. hrs.

Acc. 512—Accounting and Information Systems

A study of accounting procedures to provide management with data to make decisions, types of data required for planning and control; availability and reliability of such data in accounting systems; provision of special-purpose data; conditions of good internal reporting.

Acc. 520—Seminar in Accounting

Selected problems and topics in accounting are examined. Permission of the graduate faculty in accounting is a prerequisite. 3 sem. hrs.

Acc. 522—Tutorial in Accounting

Individual reading and research in a selected area is conducted under the direction of a member of the graduate accounting faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

III. ECONOMICS

Eco. 500—National Income and Employment Analysis

The course treats systematically the concepts and methods used in national income accounting and reviews theories relevant to national product and income stability. 3 sem. hrs.

Eco. 505—Contemporary Readings in Economics and Business

This course surveys the major contributions to current business and economic thought. The original works of leading contemporary scholars and men of affairs in the various economic and business disciplines are studied. 3 sem. hrs.

Eco. 508—Advanced Studies in the History of Economic Thought

The principal theoretical analysis and policy recommendations of prominent economists from the Mercantilists to the present are studied. 3 sem. hrs.

Eco. 509—International Economics

The theory and practice of international economic and financial relations are studied as well as their role in the search for stability and growth. 3 sem. hrs.

Eco. 512—Theory of Economic Development

General theories of economic development, from classic to Keynesian, are explored to serve as a basis for comparison and discussion of the present partial theories of underdevelopment. 3 sem. hrs.

Eco. 513—Economic Development in Underdeveloped Countries

The course consists principally of case studies selected to illuminate the diversity of problems defying theoretical generalization. 3 sem. hrs.

Eco. 515—Advanced Price Theory

A rigorous analysis of the various market structures and the pricing process for commodities and for productive services as taking place within these market forms. A systematic study of the conventional "tools" of the theory of price is included, and also some consideration given to possible divergences between practice and theory in the pricing process. 3 sem. hrs.

Eco. 517—Selected Studies in Labor Economics

This course investigates the impact of trade unionism in the United States, through its collective bargaining and political action activities, on inflation, on employment, the wage structure, the functional and size-distribution of national income, and economic growth. 3 sem. hrs.

Eco. 520—Seminar in Economics

Selected problems and topics in economics are examined. Permission of the graduate faculty in economics is a prerequisite. 3 sem. hrs.

Eco. 522—Tutorial in Economics

Individual reading and research in a selected area is conducted under the direction of a member of the graduate economics faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

IV. FINANCE

Fn. 500—Problems in Money, Banking and Prices

This course is designed to deal with the organization, functioning, and problems of the present day money and banking system of the United States with particular attention given to the Federal Reserve System. 3 sem. hrs.

Fn. 502—Monetary and Fiscal Problems

A study is made of monetary and fiscal theories and problems in a modern industrial economy; of the role of Central banking; of theories of interest and the rate of interest and of the impact of monetary and fiscal operations on the general economy. Study is directed mainly to domestic facets but international aspects are also considered. 3 sem. hrs.

Fn. 506—Financial Management

The principles of finance are used as the basis for the development of techniques useful in the area of financial management. The vehicle for the accomplishment of this objective is a series of actual and simulated cases involving analysis and decision making by the student. 3 sem. hrs.

Fn. 510—International Finance

Foreign exchange and investment problems are studied intensively. 3 sem. hrs.

Fn. 520—Seminar in Finance

Selected problems and topics in finance are examined. Permission of the graduate faculty in finance is a prerequisite. 3 sem. hrs.

Fn. 522—Tutorial in Finance

Individual reading and research in a selected area is conducted under the direction of a member of the graduate finance faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

V. MANAGEMENT

Mg. 500—History of Management Thought

The writings of Owen, Fayel, Follett, Taylor, Sheldon, and other leaders in management thought are studied. 3 sem. hrs.

Mg. 502—Managerial Economics

Economic theory, both qualitative and quantitative, in context with business practices is presented with the intent of demonstrating its value in decision making and forward planning. 3 sem. hrs.

Mg. 504—Personnel Administration

The aim of the course is to analyse the human problems of operating management. Policy decisions involving selection, remuneration, incentives, work load, training, discipline, and similar areas; the contributions of behavioral sciences; where applicable collective bargaining implications and the industrial relations responsibilities of the firm will be explored. 3 sem. hrs.

Mg. 508—Data Processing Principles, Methods and Controls

The course is designed to acquaint the student with modern data processing principles, methods, and controls. The student is introduced to actual machine programming and operations in order that he may evaluate types of equipment of solving data processing problems. Accounting control and auditing techniques and problems are discussed. Specific case problems are programmed. 3 sem. hrs.

Mg. 509—Advanced Data Processing

Systems design, basic assembly language and report program generator programming are covered. Mg. 508 or the permission of the instructor is a prerequisite for this course. 3 sem. hrs.

Mg. 520—Seminar in Management

Selected problems and topics in management are examined. Permission of the graduate faculty in management is a prerequisite. 3 sem. hr.

Mg. 522—Tutorial in Management

Individual reading and research in a selected area is conducted under the direction of a member of the graduate management faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

Mg. 550—BA in the 21st Century

This course is designed to meet an urgent need that exists for business managers to be able to plan for and deal with problems of the future which are coming at the business world at an ever increasing rate. 3 sem. hrs.

VI. MARKETING

Mk. 500—Modern Marketing

An intensive study, analysis and interpretation of management decisions: includes both those which directly control marketing operations, and those which are affected by or dependent upon marketing operations. Marketing concepts pervade and orient the study. 3 sem. hrs.

Mk. 501—Marketing Simulations

Exploration and study of actual and potential applications of mathematical models

and related techniques and disciplines in marketing management decision making. College algebra and business statistics are prerequisites. 3 sem. hrs.

Mk. 502—Marketing Problems

Current marketing situations are studied and appraised. The application of evolving marketing concepts in solving the problems thus exposed is intensive; due regard is given to the concurrent economic, political and social developments and trends.

3 sem. hrs.

Mk. 504—Development of Marketing Theory

The emergence and evolution of marketing theory in 19th century economic literature are explored. This provides the basis for the critical and intensive study of current trends in its continuing development during the 20th century.

3 sem. hrs.

Mk. 505—Marketing Communications

The flow of information between producer and buyer is studied and analyzed within the 'systemic' concept of decision controls. The "know-why" of sound decisions within the system is stressed rather than the "know-how" for their accomplishment.

3 sem. hrs.

Mk. 512—International Marketing

Significant similarities and differences in marketing problems in countries other than the United States are explored and analyzed. In addition to several cases, principles of the managerial and behavioral sciences are examined for potential application in specific countries.

3 sem. hrs.

Mk. 513—World Business

The explosive expansion of world business demands of potential executives in global firms a re-orientation of attitudes, heretofore, national or regional; and a widening foundation of knowledge concerning cultures, environments and governmental philosophies in other countries. Case studies, exploring these and related study areas, are used intensively to provide these needs.

3 sem. hrs.

Mk. 520—Seminar in Marketing

Selected problems and topics in marketing are examined. Permission of the graduate faculty in marketing is a prerequisite.

3 sem. hrs.

Mk. 522—Tutorial in Marketing

Individual reading and research in a selected area is conducted under the direction of a member of the graduate marketing faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

VII. QUANTITATIVE METHODS

Q.M. 501—Introduction to Management Science I

An introduction to deterministic and stochastic models of managerial decision-making. While the philosophical, methodological, formulation, solution and analytical aspects of the models are examined, emphasis would be on model applications to management-functional areas like accounting, finance, marketing and production. Topics may include linear, quadratic, geometric, non-linear, integer and dynamic programming techniques, probability theory, statistical inference, game theory and market processes, assignment and transportation models, network flow analysis, inventory and queuing systems and simulation.

Q.M. 502—Introduction to Management Science II

Continuation of "Introduction to Management Science I." Topics not completed in the "Introduction to Management Science I" are examined in this course.

Q.M. 503—Selected Topics in Management Science I

Selected topics and problems in management science and its applications to accounting, economics, finance, management, marketing and production are examined. Topics are from among the following: linear, quadratic, geometric, non-linear, integer and dynamic programming techniques, probability theory, statistical inference, game theory and market processes, assignment and transportation models, net work flow analysis, inventory and queuing systems and simulation.

Q.M. 504—Selected Topics in Management Science II

Continuation of "Selected Topics in Management Science I". Topics not completed in the "Selected Topics in Management Science I" are examined in this course.

VIII. BUSINESS ADMINISTRATION

B.A. 410—Legal Environment of Business

Employing an entirely different approach to the subject matter from that found in the typical Business Law course, this course is a comprehensive and general analysis of the relation of law to business. It is designed to bring the student to a realization that the business community operates within the framework of the legal system.

3 sem. hrs.

B.A. 510-511—Business Planning

An advanced study of corporate mergers, re-organization, and the applicable tax planning and security planning necessary to implement such mergers.

3 sem. hrs.

IX. FOUNDATION COURSES

Courses in the 400 series are open to qualified undergraduates and to graduate students who have not had undergraduate work in the areas represented by the courses. Courses in this series *cannot* be substituted for any course numbered 500 or over.

Acc. 400-401—Financial Accounting

These courses develop the basic concepts and techniques of accounting procedures and financial statement preparation and interpretation. The use of accounting for control and decision-making purposes by management is emphasized. Case analyses are required.

6 sem. hrs.

Eco. 410-411—Micro & Macro Economics

These courses are designed for students preparing for graduate studies in economics, business administration, or industrial engineering; and graduate students whose primary undergraduate discipline was not economics. The emphasis is the usual one appropriate to the two disciplines.

3 sem. hrs.

Mk.-Mg. 400—Marketing and Management

The principles of marketing are studied in combination with the principles of management. Theory and practice are blended through reading assignments and case studies.

3 sem. hrs.

Fn. 402—Financing of Business Enterprises

The functions of money and the nature of the monetary and banking systems of the United States are reviewed. The financing and concomitant requirements for organizing and establishing business enterprises are studied. The financial policies of corporations are emphasized.

3 sem. hrs.

Q.M. 400—Business Statistics

The course concentrates on statistical methods with particular reference to their application in business. Sources and collection of data and sampling procedures are

studied. Included also are statistical measures and tests for validity and reliability, the construction and use of index numbers, problems of time series, regressions and correlations. 3 sem. hrs.

Q.M. 401—Decision Mathematics with Calculus

Fundamental mathematics for business and economics including topics from set theory, vector spaces, matrix methods, calculus and probability with applications to model-building and decision-making in business environment. This course forms a background for quantitatively oriented advanced courses in accounting, economics, finance, management, management science and marketing. 3 sem. hrs.

Q.M. 404—Mathematics Applied to Business and Economics

This course treats a wide variety of examples of modern mathematics used in solving business problems and formulating economic theory. 3 sem. hrs.





CHEMISTRY

Chairman: Anthony DiMaggio, Ph.D.;

Professor: Robert Petterson;

Associate Professors: Anthony DiMaggio, Jasjit Walia, Richard S. Wendt;

Assistant Professors: Clifford Hebert, Frank Komitsky, Jr., Robert Ratchford, S.J.

PURPOSE

The Graduate Program is designed to produce a professionally skilled scientist capable of conducting independent research. It is essentially an integrated course of study consisting of formal courses, seminar type discussion groups and increasingly independent research.

ADMISSION

Any student who has a Bachelor's Degree from a recognized college or university and at least a minor in Chemistry is eligible for admission to the program. Application for admission forms is made to the Committee on Graduate Study in Chemistry at least one month before the beginning of a session.

A complete file consists of a completed application form, official transcripts sent from all colleges and universities attended and letters of reference from three (3) persons who are competent to judge on the applicant's scholastic ability and research potential. Graduates from North American Universities must have both aptitude and advanced section Graduate Record Examination scores sent directly to the Department of Chemistry.

BACKGROUND EXAMINATION

As soon as possible, the entering graduate student takes examinations which test his knowledge of undergraduate work in Organic, Physical, Inorganic and Analytical Chemistry. Deficiencies revealed by these examinations ordinarily can be remedied by taking an appropriate undergraduate level course and obtaining a grade of "B" or better.

GUIDANCE COMMITTEE

The Committee on Graduate Studies will plan a course of study until the student selects a dissertational research advisor. This Committee will then appoint a Guidance Committee which will meet with the student at least once a semester to evaluate his progress and determine his future course of study. All decisions of the Guidance Committee are subject to review and approval of the Committee on Graduate Studies.

COURSE REQUIREMENTS

Precise requirements will be set for each student by his Guidance Committee, normally about 30 hours of graduate courses exclusive of research. Students must register for Seminar each semester.

Credit may be given for graduate or upper division courses outside the field of Chemistry in related subjects, such as Physics, Mathematics, and Biology. We strongly recommend that a good course in technical writing be taken, if available. Credit may be given for one liberal arts course.

Certain specialized courses may be taken at other local Universities, such as Tulane and LSUNO, on advice of the student's Guidance Committee.

FOREIGN LANGUAGES

Proficiency in reading scientific German and either Russian, French, or, if it is not the student's native tongue, English, must be demonstrated. The Chemistry Department will determine proficiency.

CUMULATIVE EXAMINATIONS

When a student is judged qualified by his Guidance Committee he may start taking the cumulative examinations. There are three written exams in the major field scheduled each semester. Once exam must be passed by the end of the student's fourth semester; four must be passed by the end of the student's sixth semester.

PROPOSITIONS

When four (4) cumulative exams have been passed, the student is considered to have demonstrated his competency in the subject matter of his major field. To prove that he is capable of originating and planning research (and of defending his ideas on his feet) he must prepare and defend before his committee one or two propositions.

The proposition should be an imaginative, detailed, practicable proposal for original research in any area of chemistry other than that of the students' dissertation.

Ph.D. DISSERTATION

A written dissertation on the student's research must be submitted in the form and by the deadlines set by University Regulations.

FINAL ORAL EXAMINATION

After the dissertation has been accepted the student will present and defend it before his Guidance Committee. However, the final oral will not be limited to the subject of the dissertation and it is possible that someone could fail the final oral.

GRADUATE TEACHING

As part of the requirements for the Ph.D. degree, each student will be required to do some teaching to the extent deemed necessary by the Department Chairman.



Graduate Courses

- Ch. 500-509—Seminar 1 sem. hr. each semester
- Ch. 510-519—Laboratory Techniques in Area Chemistry
Courses intended to introduce students to special sophisticated methods used in research. 2 or 3 sem. hrs.
- Ch. 520-529—Selected Topics in Organic Chemistry
Courses in reaction mechanism, kinetics, spectroscopy, synthesis or classes of compounds taught on demand to interested students as needed. 2 or 3 sem. hrs.
- Ch. 530-539—Selected Topics in Inorganic Chemistry
Courses in reaction mechanisms, kinetics, spectroscopy, synthesis or classes of compounds taught on demand to interested students as needed. 2 or 3 sem. hrs.
- Ch. 540-549—Selected Topics in Physical Chemistry
Courses in thermodynamics, kinetics, spectroscopy, atomic theory, bonding and equilibria, etc., taught on demand to interested students as needed. 2 or 3 sem. hrs.
- Ch. 550-559—Selected Topics in Biochemistry
Courses in kinetics, enzymology, metabolism or classes of compounds taught on demand to interested students as needed. 2 or 3 sem. hrs.
- Ch. 600—Dissertation Research
No academic credit as such. Terminal students engaged full-time in research will register to formalize classification as full time students for administrative purposes.





EDUCATION

Chairman: Ralph J. Erickson, Ph.D.;

Professor: Ralph Erickson;

Associate Professors: Clement Cosgrove, S.C., Hilda Smith;

Assistant Professors: Marie Condon, M.H.S., Mary Fitzgerald, Veronica Egan, Blanche Zink;

Instructors: Lorynne Cahn;

Lecturers: Sam Bordelon, Raymond Smith, Octave Tournillion, III.

PURPOSE

The Graduate Division of the Department of Education is organized to offer advanced courses to members of the teaching profession for the purpose of understanding and analyzing the fundamental problems involved in the work of teaching, to acquire proficiency in the techniques of such understanding and analysis, and to become acquainted with the attempts of others toward the solution of these problems.

It is designed to offer preparation for the positions of elementary and secondary principals, supervisors, guidance counselors, and reading specialists in public, parochial and private schools, and for advanced preparation for elementary and secondary teachers.

ADMISSION

The Graduate Division of the Department of Education offers courses of instruction leading to the degree of Master of Education for properly qualified students who have been admitted as classified graduate students.

A classified graduate student is one who has received the Bachelor's degree from a recognized college with a major in education, who has no prerequisite undergraduate work to make up, who has completed the upper division work satisfactorily (i.e. with a mark of "B" or better) in the undergraduate major in education, who is following a program of studies leading to an advanced degree, and who has been admitted by the Executive Committee of the Department of Education as a classified graduate student, following the successful completion of his qualifying exam.

Applicants possessing degrees other than education are eligible for admission to the graduate program in education providing they have completed the education requirements for state certification or their equivalent.

Students in good standing who are teachers pursuing hours beyond the Master's level may schedule 6 semester hours of graduate work during a semester plus nine hours in the summer by attending both terms.

Upon the successful completion of all course work and with the approval of the Executive Committee of the Department of Education, a classified graduate student is permitted to make application for the comprehensive examination. This application must be filed not later than two weeks after the opening of the semester in which the degree is sought.

COURSE REQUIREMENTS

The candidate must complete thirty semester hours of graduate work in course with a passing mark in each course.

Not more than twelve semester hours may be scheduled by a full-time student in any one semester. A full-time employee may schedule no more than 6 semester hours of graduate work during a semester. In the summer session 6 semester hours of graduate work may be scheduled for the six-week term and three hours during the three-week term.

A student who obtains a "C" is automatically placed on probation and his status is subject to review by the Executive Committee.

A student who earns an "F" in a required course would have to repeat the course and earn a grade of "B" or better.

Any student earning two or more "F's" is automatically dropped from the degree program and will be ineligible to take courses in the Department of Education.

COMPREHENSIVE EXAMINATION

A comprehensive written examination covering Philosophy of Education and the major field of work shall be passed by the candidate upon completion of his course work. Comprehensive examinations are scheduled regularly in November, April, and July.

When performance on the written examination is questionable, an oral examination is required of the candidate. When the degree is deferred pending another examination, the next examination must be postponed for a minimum of one semester, or for a longer period at the discretion of the Committee in Charge of the Candidacy. The second examination for the Master's degree is final. If unsuccessful, no further examination will be allowed.

COURSE PROGRAM

The student's program is planned with his adviser from the full curriculum of graduate courses. A minimum of twelve hours must be completed in one specific area. The areas of specialization include the following: elementary and secondary administration and supervision, guidance, elementary education, and secondary education. This program is subject to the approval of the Executive Committee of the Department of Education.

The program will include the following core courses:*

Ed. 401 Philosophy of Education

Ed. 490 Methodology of Educational Research

Ed. 491 Statistics in Education

* These Core Courses must be taken within the first Twelve hours of Graduate Studies at Loyola University.



Master of Education in Guidance and Counseling

As a professional educator with practical experience in the classroom, a future school guidance counselor should have already acquired a thorough understanding of all aspects of human development and should be reasonably familiar with the educational setting in which he will work. In addition to this basic preparation, the program for school service personnel in the area of guidance and counseling seeks to fulfill the following specific objectives in training school guidance counselors by assisting each candidate: to understand the philosophy of guidance as an integral function in the educational process; to obtain a thorough knowledge of the basic concepts, principles, methods, procedures, and techniques of guidance and counseling; and to become duly certified, competent guidance counselors adequately prepared and completely qualified to implement in the educational setting the knowledge and skills acquired.

The degree program for students specializing in the area of guidance and counseling, exclusive of standards for state certification, prescribes that each student obtain, in addition to the nine-hour core requirements, a minimum of twelve semester hours of credit from among the list of program offerings submitted below. The other nine hours of credit needed to make the total of thirty semester hours for the master's degree may be elective courses. A student may fulfill the State requirements for certification as a Guidance Counselor by completing the five courses marked with an asterisk comprising a total of fifteen semester hours of credit:

*Ed. 470—Principles of Guidance	3 sem. hrs.
*Ed. 471—Analysis of the Individual: Educational Tests and Measurement	3 sem. hrs.
*Ed. 474—Educational and Occupational Information	3 sem. hrs.
*Ed. 475—Counseling	3 sem. hrs.
Ed. 576—Group Guidance	3 sem. hrs.
*Ed. 477—Organization and Administration of Guidance	3 sem. hrs.
Ed. 479—Practicum in Guidance	3 sem. hrs.



Master of Education in Reading

In addition to the core requirements for the Master's program, all M.Ed. students concentrating in the field of reading will be required to complete the following courses:

Ed. 457—Reading Foundations 3 sem. hrs.

Ed. 458—Problems in Teaching Reading 3 sem. hrs.

Either—

Ed. 455-456—Internship in Developmental Reading Methods for the Secondary School Teacher (Prerequisite—Ed. 457 and Ed. 458) 6 sem. hrs.

Or—

Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher (Prerequisite—Ed. 457 and Ed. 458) 6 sem. hrs.

The remaining six required hours may be selected from the following courses:

Ed. 431—Mental Hygiene and Psychology of Personality Development 3 sem. hrs.

Ed. 443—Advanced Educational Psychology 3 sem. hrs.

Ed. 452—Advanced Child Psychology 3 sem. hrs.

Ed. 453—Advanced Psychology of Adolescence 3 sem. hrs.

Ed. 471—Analysis of the Individual:
Educational Tests and Measurements 3 sem. hrs.

This program meets the minimum standards for reading specialists as determined by the IRA with this limitation: a minimum of three years teaching and/or clinical experience.



Master of Education in Administration

Graduate courses in Administration and Supervision provide experiences that enable the student to gain an understanding of the *processes* of administration and supervision in our changing society; likewise, the important role the principal plays in securing high quality education. The courses further examine the *methods of operation for effective leadership* and thus the student becomes better acquainted with the implication of leadership as well as the power structures, crucial issues, and the current problems involved in school administration and supervision.

In addition to the nine-hour core requirements of the Master's program, twelve hours of courses in the field of administration and supervision are required. The courses in administration and supervision are Ed. 420, Ed. 421, Ed. 422, Ed. 423, Ed. 424, Ed. 425, Ed. 426, Ed. 427, Ed. 428, and Ed. 432.

For elementary principal or supervisor, the following two courses are required:

Ed. 420—School Administration: Elementary 3 sem. hrs.

Ed. 421—School Supervision: Elementary 3 sem. hrs.

For secondary principal or supervisor, the following two courses are required:

Ed. 422—School Administration: Secondary 3 sem. hrs.

Ed. 423—School Supervision: Secondary 3 sem. hrs.

If individuals wish to prepare for both levels, Ed. 420, Ed. 421, Ed. 422, and Ed. 423 are required.

The suggested electives which would contribute to the program at the elementary level are:

Ed. 440—Elementary School Curriculum 3 sem. hrs.

Ed. 442—Problems in Elementary Education 3 sem. hrs.

The suggested electives which would contribute to the secondary level program are:

Ed. 450—Secondary School Curriculum and
Co-curricular Activities 3 sem. hrs.

Ed. 451—Problems in Secondary Education 3 sem. hrs.

Ed. 453—Advanced Psychology of Adolescence 3 sem. hrs.

Ed. 454—The Junior High School 3 sem. hrs.

For certification of parish or city school supervisor or school principal, in addition to the teaching certificate and successful teaching experience, the State of Louisiana requires a Master's degree from a regionally-accredited institution, including twelve semester hours of professional education at the graduate level.



Master of Education in Elementary Education

Students working for advanced preparation in Elementary Education are required to complete the nine-hour core requirement and twelve hours from the following courses:

Ed. 432—Supervision of Student Teachers 3 sem. hrs.

Ed. 440—Elementary School Curriculum 3 sem. hrs.

Ed. 442—Problems in Elementary Education 3 sem. hrs.

Ed. 443—Advanced Educational Psychology 3 sem. hrs.

Ed. 452—Advanced Child Psychology	3 sem. hrs.
Ed. 457—Reading Foundations	3 sem. hrs.
Ed. 458—Problems in Teaching Reading	3 sem. hrs.
Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher	6 sem. hrs.
Ed. 463—Audio-Visual Aids	3 sem. hrs.

The other nine hours of electives may be taken from any graduate courses with the approval of their advisor.



Master of Education in Secondary Education

Students working for advanced preparation in Secondary Education are required to complete the nine-hour core requirements and twelve hours from the following courses:

Ed. 432—Supervision of Student Teachers	3 sem. hrs.
Ed. 443—Advanced Educational Psychology	3 sem. hrs.
Ed. 450—Secondary School Curriculum and Co-Curricular Activities	3 sem. hrs.
Ed. 453—Advanced Psychology of Adolescence	3 sem. hrs.
Ed. 454—The Junior High School	3 sem. hrs.
Ed. 455-456—Internship in Developmental Reading Methods for the Secondary School Teacher	6 sem. hrs.
Ed. 463—Audio-Visual Aids	3 sem. hrs.

The other nine hours of electives may be taken from any graduate courses with the approval of their advisor.



Education Course Offerings

Ed. 401—Philosophy of Education

A brief study of the major philosophies, including contemporary movements, which affect educational thought. 3 sem. hrs.

Ed. 402—Comparative Education

A comparison of the most typical educational systems in Europe, Asia, and America

pointing out the basic differences in such areas as objectives, curricula, and teaching methods; social and technical changes and their effects. 3 sem. hrs.

Ed. 420—School Administration: Elementary

Principles, policies, practices and problems of elementary school administration; the role and functions of the elementary principal; the improvement of pupil discipline and school-community relations. 3 sem. hrs.

Ed. 421—School Supervision: Elementary

Principles, policies, practices and problems of elementary school supervision; in-service education of teachers; replacement or modification of the assign-study-recite-test scheme of teaching by more modern and defensible teaching techniques. 3 sem. hrs.

Ed. 422—School Administration: Secondary

Principles, policies, practices and problems of secondary school administration; the role and functions of the secondary principal; the improvement of pupil motivation and teacher morale; administering the comprehensive secondary school. 3 sem. hrs.

Ed. 423—School Supervision: Secondary

Principles, policies, practices and problems of secondary school supervision; the aims and objectives of secondary education; coordination, reform and reorganization of the secondary school curriculum. 3 sem. hrs.

Ed. 424—School Administration: Financing Public Education

The development of public support of education in the United States; the role of federal, state, and local government in financing education; principles, practices and problems relative to the sources, distribution, and expenditure of public funds. 3 sem. hrs.

Ed. 425—School Administration: Legal Foundations and Problems

Principles of law as found in Constitutional provisions, typical statutes and decisions of cases as they affect education, public and private, are examined in this course from the viewpoint of governing bodies, administrators, educators, students and those responsible for them. 3 sem. hrs.

Ed. 426—Organization and Administration of Public Education in the United States

The scope and sequence of American Public Education; the role of the federal government, state government, and the local school district in American public education; problems, responsibilities and activities of public school teachers. 3 sem. hrs.

Ed. 427—The Organization and Administration of the Middle School

Principles, Problems, Practices and Policies of the Middle School Administration; the role and functions of the principal in this type of school. This course can be used as an administration course needed for certification as an elementary principal. 3 sem. hrs.

Ed. 428—Innovations In Education

This course deals with the philosophy, organization and administration of an innovative elementary school. Included in this instructional program will be team-teaching, non-graded classes and individualized instruction. 3 sem. hrs.

Ed. 431—Mental Hygiene and Psychology of Personality Development

A study of the nature, principles, problems, and techniques of mental hygiene as applied to the personal-social-emotional adjustment of the child in the educational process and of the meaning, structure, components, management, and patterns of adjustment in the psychology of personality development as related to the promotion of good mental health. 3 sem. hrs.

Ed. 432—Supervision of Student Teachers

Role of the supervising teacher in student teaching. For those teachers who are interested in supervising elementary or secondary student teachers. Prerequisite: teaching experience and consent of instructor. 3 sem. hrs.

Ed. 440—Elementary School Curriculum

Comprehensive survey and study of the elementary school program. 3 sem. hrs.

Ed. 442—Problems in Elementary Education

Seminar in problems peculiar to education at the elementary level. 3 sem. hrs.

Ed. 443—Advanced Educational Psychology

A study of the nature of learning and the learning process with emphasis on a critical examination and evaluation of various theories of learning; the factors affecting learning, such as individual differences, motivation, memory, habits, transfer of training, and so on. 3 sem. hrs.

Ed. 444—Seminar on Learning Disabilities

Treats the various professional approaches used to understanding the child who has great difficulty in learning but is apparently normal intellectually. Emphasis is upon the recognition, understanding, and remediation of various forms of learning disabilities. 3 sem. hrs.

Ed. 450—The Secondary School Curriculum and Co-curricular Activities

Historical development of secondary education in the United States; objectives, purposes, and functions of curriculum including co-curricular activities; principles of curriculum development and reorganization; organization and structure of the curriculum; factors influencing the curriculum. 3 sem. hrs.

Ed. 451—Problems in Secondary Education

A critical analysis of the problems and issues of secondary education today and an appraisal of the proposals for suggested changes and improvements in secondary education. 3 sem. hrs.

Ed. 452—Advanced Child Psychology

A thorough study of child behavior from birth through the elementary school age with reference to the recognition and development of the various traits of personality prior to the onset of puberty. 3 sem. hrs.

Ed. 453—Advanced Psychology of Adolescence

A thorough study of the adolescent personality through the analysis of physical, emotional, social, motivational, intellectual, and volitional developmental changes, behavioral characteristics, basic problems and adjustments. 3 sem. hrs.

Ed. 454—The Junior High School

Current administration, principles and practices essential to the effective organization and management of the junior high schools. Will consider the educational leadership required of the junior high school principalship in such areas as the program of studies, schedule making, instructional materials, student activities, staff relationships, and school-community relations. 3 sem. hrs.

Ed. 455-456—Internship in Developmental Reading Methods for the Secondary School Teacher

Analysis of research; the objectives of developmental reading; how these objectives are achieved; practical experiences with the materials and supplementary equipment used in the field. Experience will be provided with students in large groups, grades 7-12. Summer only. Both courses must be taken together. 6 sem. hrs.

Ed. 457—Reading Foundations

A foundation course designed to explore, in depth, the skills to be developed in a reading program, the grade-placement of these skills, and methods for developing efficiency in the application and usage of these skills. 3 sem. hrs.

Ed. 458—Problems in Teaching Reading

A course to give the classroom teacher, administrator, and reading specialist insight concerning the problems related to retardation in reading. Causes, diagnostic procedures, and remedial methodology for increasing the reading efficiency of children and adolescents will be emphasized. 3 sem. hrs.

Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher

For teachers of grades K-6 only. A class-practicum course stressing diagnosis and correction of reading problems at the elementary level and the operation of developmental programs and individualized instruction in reading by the classroom teacher. Courses will include standardized and teacher-made tests. Children will be provided for the practicum. These courses must be taken concurrently. Summer only.

6 sem. hrs.

Ed. 463—Audio-Visual Aids

The organization and administration of an audio-visual program and the effective utilization of audio-visual equipment, materials and techniques. 3 sem. hrs.

Ed. 470—Principles of Guidance

A survey of the history, nature, purposes, functions, principles and practices of organized guidance in our educational system. 3 sem. hrs.

Ed. 471—Analysis of the Individual: Educational Tests and Measurements

A survey of the educational measurement movement; the principles and techniques of constructing and improving teacher-made tests; an appraisal of intelligence, aptitude, achievement, and interest tests relative to their validity, reliability, administration and interpretation. 3 sem. hrs.

Ed. 474—Educational and Occupational Information

A study of various types of published information and multi-sensory materials, various occupational classification systems, methods of collecting, classifying, evaluating, and using occupational information. 3 sem. hrs.

Ed. 475—Counseling

Theories and techniques of counseling with consideration given to the principles, practices, tools, problems, and evaluation of counseling. 3 sem. hrs.

Ed. 476—Group Guidance

The nature, importance, and types of group guidance in a guidance program; an intensive study of the contents, materials and techniques utilized in group guidance. 3 sem. hrs.

Ed. 477—Organization and Administration of Guidance

A careful study of the various types of guidance programs current in theory and practice. This will stress the functions of guidance at the elementary, secondary, college, and adult level. 3 sem. hrs.

Ed. 479—Practicum in Guidance

This course is designed to apply the testing and counseling knowledge and skills acquired in other courses. In classroom discussion trends, issues, professional stature and ethical conduct as well as related services will be emphasized. This should be the last course taken in the student's guidance sequence. 3 sem. hrs.

Ed. 490—Methodology of Educational Research

An extensive study of the methods and tools of educational research with emphasis upon student application of the scientific method through the selection, development, and reporting of a research topic. 3 sem. hrs.

Ed. 491—Statistics in Education

The computation, use and understanding of frequency distributions, measures of central tendency, measures of variability, normal curve, correlation, and statistical inference as applied to education and found in educational literature. Prerequisite: Ed. 490 3 sem. hrs.

Ed. 499—Research Problem in Education

An individual research project, under close supervision of a faculty member, when particular needs of a student cannot be satisfied by the regularly scheduled courses. Prerequisite: Ed. 490 1-3 sem. hrs.





MATHEMATICS

Chairman: Robert T. McLean, Ph.D.;

Professor: Robert McLean;

Associate Professors: Sam Nadler, Lewis Todd, Bernard Tonnar, S.J., Ray Witham;

Assistant Professors: Sylvester DeConce, S.S.F., Joseph Quinn, Robert Stevens;

Instructors: Carl Ahlers, Judith Threadgill.

PURPOSE

There are many areas of study and application for the mathematician's professional life but many of these require a more sophisticated foundation than that provided by the usual undergraduate major program. The Master of Science degree in mathematics at Loyola University is designed to develop a level of competence that will place graduates at the threshold of independent study and research.

This provides a sound foundation for joining applied or research groups in industrial, business, social science or government work. The University realizes a responsibility for training qualified faculty for teaching in the growing number of liberal arts, junior and community colleges. This program is well adapted to this purpose. A seminar in college teaching is included for those graduate students who plan to teach at the college level.

ADMISSION

Applicants wishing to study for the Master of Science in Mathematics must have a baccalaureate degree from an accredited four-year institution and must exhibit a potential for graduate work. The Graduate Committee of the Department of Mathematics will expect an above average showing in undergraduate mathematics and favorable scoring on the Graduate Record Examination. In addition an undergraduate background, including advanced calculus, linear algebra, and abstract algebra is required. If this minimal foundation is lacking, the student may be admitted conditionally while he meets this requirement by taking the necessary undergraduate courses.

REQUIREMENTS

All students will take the three core courses in analysis, algebra, and topology (Mt. 501,502;Mt.511,512;Mt. 521,522) for total of eighteen hours. They elect an additional twelve hours of mathematics including a research problem.

Those wishing to be recommended for teaching at the junior college or small liberal arts college level will participate in the college faculty preparation

seminar and may elect to take an additional six hours of mathematics courses rather than develop a research problem. This would total thirty six hours. Credit for the teaching seminar is not included in the thirty hours or thirty-six hours for the degree.



Courses

Math 501-502—Real Analysis I

An investigation of the properties of real valued functions of one and several variables. 6 sem. hrs.

Math 503-504—Real Analysis II

Treatment in greater depth will be given to selected topics both from previous courses and new topics now readily accessible because of the student's deeper insights. 6 sem. hrs.

Math 505-506—Complex Analysis

An investigation of the properties of complex valued functions over a complex domain including conformal mapping, residue and pole theory and analytic continuation. 6 sem. hrs.

Math 509-510—Advanced Topics in Analysis

Prerequisite: Permission of the instructor. 6 sem. hrs.

Math 511-512—Abstract Algebraic Theories I

This is a survey of groups, rings, fields, vector spaces, lattices and algebraic field extensions. 6 sem. hrs.

Math 513-514—Abstract Algebraic Theories II

Treatment in greater depth will be given to selected topics both from previous courses and new topics now readily accessible because of the student's deeper insights. 6 sem. hrs.

Math 515—Theory of Numbers

3 sem. hrs.

Math 516—Theory of Groups

3 sem. hrs.

Math 519-520—Advanced Topics in Algebra

6 sem. hrs.

Math 521-522—General Topology

An introduction to point set topology through metrization with applications. 6 sem. hrs.

Math 529-530—Advanced Topics in Topology

6 sem. hrs.

Math 531-532—Geometric Theories

This is a survey of topics in Euclidean, non-Euclidean, affine, projective and algebraic geometries. 6 sem. hrs.

Math 539-540—Advanced Topics in Geometry

6 sem. hrs.

Math 541-542—Topics in Applied Mathematics

Topics will be selected from concepts adaptable to the design and solution of problems in economics, business, physics, biology, chemistry, and computer-oriented research fields.

6 sem. hrs.

Math 543-544—Probability and Mathematical Statistics

6 sem. hrs.

Math 545-546—Numerical Analysis

6 sem. hrs.

Math 591-592—Research Problem

The developing of research techniques through seminar presentations and discussions with the ultimate goal of preparing a scholarly dissertation dealing with concepts at or near the frontiers of contemporary mathematics will dominate this research seminar.

6 sem. hrs.

Math 595-596—College Faculty Preparation Seminar

This is required for all graduate students expecting to teach at the college level. Psychology of learning, observation of master teachers, classroom techniques, the role of innovation, faculty responsibilities, and rewards will be among the topics of seminar discussions. The seminars are designed to bring the graduate to a higher level of readiness and competence for the routine challenges of college teaching. The art of teaching will be introduced through participation in clinical teaching of undergraduate topics at various times in one of the master teachers experimental or regular sections.

6 sem. hrs.





COLLEGE OF MUSIC

Dean: Joe B. Buttram, Ph.D.;

Professors: Joe B. Buttram, Michael Carubba, Clement McNaspy, S.J.;

Associate Professors: James Bastien, Charles Braswell, Patrick McCarty;

Assistant Professors: Milvern Ivey, Sherman Vander Ark;

Instructors: Christine Christman, Joseph Hebert, Esther Olin.

PURPOSE

The Graduate Division of the College of Music offers two degrees, the Master of Music Education and the Master of Music in Music Therapy. The Master of Music Education degree is designed for members of the teaching profession. The intent of the degree is the development of professional leadership capabilities with emphasis on scholarly research. The Music Therapy Department offers a program of graduate study designed to provide serious students with the opportunities to achieve advanced professional, behavioral and musical knowledge. In addition, techniques of scholarly writing and research are emphasized.

ADMISSION

In order to pursue the Master of Music Education degree, the applicant must hold a Bachelor of Music Education degree or its equivalent, from a recognized institution. Those applicants holding a Bachelor's degree but not meeting the educational requirements for State certification in music may also pursue the degree, but must fulfill all deficiencies for certification before being formally admitted to candidacy. Applicants for the Master of Music Therapy degree are required to have a Bachelor of Music Therapy degree from an institution approved by the National Association for Music Therapy. In lieu of this, students having music degrees with majors other than music therapy may be accepted on a provisional basis providing all undergraduate requirements for the music therapy degree are fulfilled.

The applicant is required to complete the Miller Analogies Test, which is administered several times per year at Loyola University. Results of this test are to be sent to the Chairman of the Graduate Division, College of Music.

The applicant must take entrance examinations administered by the College of Music in music theory, history, and literature. Also required is an audition on the major instrument and a piano proficiency examination.

The applicant for the Master of Music Therapy degree must take a battery of standard psychological tests. It is recommended that a professional testing

agency be employed for this purpose. Results of these tests are to be sent directly to the *Chairman of the Music Therapy Department*.

A personal interview with the Chairman of the Graduate Division, College of Music or the Chairman of the Music Therapy Department is usually required.

RESIDENCE

Both graduate degrees offered by the College of Music require a minimum of 30 semester hours of graduate work including thesis. This work must include *one semester*, or its equivalent in summer terms, as a full-time student. Ordinarily, two summer terms will be interpreted as meeting this minimum requirement. A student may enroll for a maximum of twelve semester hours during the regular term and a minimum of nine semester hours during the summer session. A full-time teacher who wishes to take courses during the regular term may enroll for a maximum of six hours per semester. A comprehensive oral examination, including defense of the thesis, is required for graduation.



Master of Music Education

The Master of Music Education consists of a minimum of 30 semester hours chosen from the following:

I. Music Education 10-15 hours

Required Courses:

Mu 590—Seminar in Research	1 sem. hr.
Mu 591—Thesis	3-4 sem. hrs.
Mu 551—Organization of School Music	3 sem. hrs.

Courses may be elected from the following to complete the required 10-15 hours:

*Mu 454—Psychology of Music I	3 sem. hrs.
Mu 463—Influence of Music on Behavior I	3 sem. hrs.
Mu 515—Choral Pedagogy	3 sem. hrs.
Mu 521—Special Problems in Music Education	2-3 sem. hrs.
Mu 523—Woodwind Pedagogy	3 sem. hrs.
Mu 525—Brass Pedagogy	3 sem. hrs.
Mu 529—String Pedagogy	3 sem. hrs.
Mu 553—Music in Society	3 sem. hrs.

II. General Music 9-17 hrs. to be selected from the following:

Mu 511—Pedagogy of Theory	3 sem. hrs.
Mu 527—Applied Music	2-4 sem. hrs.

* Students may take a minimum of six hours of 400 level (undergraduate) courses which may apply to the graduate degree.

Mu 531—Choral Literature	3 sem. hrs.
Mu 537—Orchestral Literature	3 sem. hrs.
Mu 561—Advanced Choral Conducting	3 sem. hrs.
Mu 565—Advanced Instrumental Conducting	3 sem. hrs.
Mu 585—Advanced Scoring	3 sem. hrs.
Mu 597-8—Ensemble	1-2 sem. hrs.

III. Education 3-6 hours to be selected from courses such as the following:

**Ed 401—Philosophy of Education	3 sem. hrs.
Ed. 443—Advanced Educational Psychology	3 sem. hrs.
Ed. 452—Advanced Child Psychology	3 sem. hrs.
Ed. 453—Advanced Psychology of Adolescence	3 sem. hrs.
Ed 463—Audio-Visual Aids	3 sem. hrs.
Ed 491—Statistics in Education	3 sem. hrs.

** Graduate courses in the School of Education are numbered from 400 to 499.



Master of Music in Music Therapy

The Master of Music in Music Therapy consists of a minimum of 30 semester hours chosen from the following:

I. Required Courses:

*Psy 403—Experimental Design	3 sem. hrs.
Mu 554—Psychology of Music II	2 sem. hrs.
Mu 563—Influence of Music II	3 sem. hrs.
Mu 573—Research in Music Therapy	3 sem. hrs.
Mu 591—Thesis	4-6 sem. hrs.

II. Electives I

Mu 511—Pedagogy of Theory	3 sem. hrs.
Mu 515—Choral Pedagogy	3 sem. hrs.
Mu 527—Applied Music	1-2 sem. hrs.
Mu 537—Orchestral Literature	3 sem. hrs.
Mu 585—Advanced Scoring	3 sem. hrs.

III. Electives II

**Psy 310—Personality Theory	3 sem. hrs.
Psy 402—Psychopathology	3 sem. hrs.
Ed 431—Mental Hygiene and Psychology of Personality Adjustment	3 sem. hrs.

* Graduate courses in the College of Education and in the Psychology Department are numbered from 400 to 499.

**A minimum of six hours of 300 level (undergraduate) courses may be elected to apply to the graduate degree.

Ed 452—Advanced Child Psychology	3 sem. hrs.
Ed 453—Advanced Adolescent Psychology	3 sem. hrs.
Ed 470—Principles of Guidance	3 sem. hrs.

In addition to the required or core courses, a minimum of five hours must be selected from subjects similar to those listed in *Electives I*, and a minimum of nine hours selected from subjects similar to those listed in *Electives II*.



Courses

Mu 454—Psychology of Music I

Acoustics of music; Sound waves and their characteristics; vibratory sources of sounds; anatomy of hearing; neural auditory connections to the cortex; the psychology of tone; nature of the aesthetic experience; tests of musicality and talent.

Mu 463—Influence of Music on Behavior I

Historical orientation, the medical use of music; the pre-Socratics; Plato and Aristotle; Aristoxenus; the transmission of Greek knowledge to the Middle Ages; the beginnings of activity or adjunctive therapy, Pinel, Tuke, Simmel, Aichorn.
3 sem. hrs.

Mu 511—Pedagogy of Theory

Presentation of the various approaches to the teaching of theory with special emphasis on primary and secondary levels. Auditing of undergraduate theory classes is required.
3 sem. hrs.

Mu 515—Choral Pedagogy

Choral organization problems, blend, balance, intonation and vocal production; interpretation of literature; program building; rehearsal psychology.
3 sem. hrs.

Mu 521—Special Problems in Music Education

Individual study in an area of interest and significance under the supervision of a faculty member.
2-3 sem. hrs.

Mu 523—Woodwind Pedagogy

Problems related to the teaching of woodwind instruments; mechanical and acoustical problems; instructional materials solo and ensemble literature.
3 sem. hrs.

Mu 525—Brass Pedagogy

Problems and procedures in the teaching of brass instruments; historical development; acoustical considerations; methods and instructional materials; literature.
3 sem. hrs.

Mu 527—Applied Music

Private study. The student must display a minimum level of performing ability on his designated major instrument (including voice).
2-4 sem. hrs.

Mu 529—String Pedagogy

Problems in the teaching of string instruments; methods and materials; literature.
3 sem. hrs.

Mu 531—Choral Literature

Extensive study of choral literature and style throughout all periods of music history. Special emphasis on materials suitable for junior-senior high school choral groups.
3 sem. hrs.

Mu 537—Orchestral Literature

Survey of orchestral literature from the Baroque to the present including stylistic analysis of selected works. 3 sem. hrs.

Mu 551—Organization of School Music

A study of Music Education, its historical development, its position in the context of educational philosophy and psychology, recent trends and the place of music in the school curriculum; criteria for the evaluation of activities, courses, materials, and methods in a well-balanced program of music. 3 sem. hrs.

Mu 553—Music in Society

A study of musical aesthetics as related to the social and political development of Western Man: Origins of aesthetic thought, Plato, Aristoxenus; Roman, Patristic and Reformation theories; Aesthetics and empiricism; Modern sociological and psychological contributions. Lecture; 3 sem. hrs.

Mu 554—Psychology of Music II

Techniques and instrumentation for research in the psychology of music. Lecture and laboratory. 2 sem. hrs.

Mu 561—Advanced Choral Conducting

A detailed study of advanced conducting problems; special emphasis on score reading and analysis; contemporary literature, style and interpretation. 3 sem. hrs.

Mu 563—Influence of Music on Behavior II

Man and Music; Processes in Music Therapy; The Community Concept in Music Therapy. 3 sem. hrs.

Mu 565—Advanced Instrumental Conducting

Conducting techniques; score reading and analysis; literature, style and interpretation. 3 sem. hrs.

Mu 572—Research in Music Education

Original investigations in the field of music education. 2-5 sem. hrs.

Mu 573—Research in Music Therapy

Original investigations in the field of music therapy. Seminar. 3 sem. hrs.

Mu 585—Advanced Scoring

The study of scoring for various media such as concert band, chorus, string orchestra, and full orchestra; course structured to individual student's need and interest. 3 sem. hrs.

Mu 590—Seminar in Research

Required of all Master's candidates, enrollment must be concurrent with the student's first semester in the graduate program; techniques in research and writing crucial to the completion of the thesis. 1 sem. hr.

Mu 597-8—Ensemble

May consist of Chorus, Orchestra, Band or smaller ensemble. 1-2 sem. hrs.





GRADUATE PROGRAMS IN SCIENCE TEACHING IN THE CHEMISTRY, MATHEMATICS AND PHYSICS DEPARTMENT

PURPOSE

The departments of Chemistry, Mathematics, and Physics offer a graduate program uniquely designed for teachers and leading to a Master of Science in Teaching. It is designed to improve subject matter mastery in their teaching field and in related sciences, as well as to keep the teachers abreast of modern developments.

ADMISSION

Any teacher who has a Bachelor's degree from a recognized institution and has undergraduate training in his chosen field may be admitted to the degree program. The adequacy of undergraduate training will be determined by the Graduate Committee of the respective Department and based on official transcripts of previous work; on results of a placement examination; and on personal interviews with the applicant.

Application for admission must be made to the Graduate Committee of the Department concerned, Loyola University, New Orleans, Louisiana 70118.

DEGREE REQUIREMENTS

A candidate is eligible for the degree when he has accumulated 30 semester hours averaging 3.00 from the graduate courses taken. Of these hours, at least 18 must be in the major field and taken at Loyola University. Up to 6 hours may be taken in the field of Education, the remaining hours may be taken in a related science field.

A working knowledge of mathematics up to and including the Calculus is required; and a reading knowledge of at least one modern foreign language is desirable.

If the degree is to be granted for course work alone, satisfactory performance in a comprehensive examination on all courses is required. In lieu of this comprehensive examination, and with prior approval of the Graduate Committee of the respective department, the Candidate may elect to write a thesis under faculty supervision. In this latter case, an oral "defense" of the thesis, or of

the research on which it is based, may take the place of the comprehensive examination.

Each candidate must have satisfactorily completed either the thesis or the comprehensive examination at least three months before the date of graduation.



Chemistry Course Offerings

Chairman: Dr. Anthony DiMaggio III, Ph.D.

Ch. 401-402T—General Chemistry

This course is taught every year and is the course usually taken by new participants who are not familiar with the CHEM Study or CBA curriculum. Lecture and Laboratory. 8 sem. hrs.

Ch. 403-404T (Ed. 403-404)—Principles of Physical Science

This course, offered to lower elementary school teachers, is designed to furnish sufficient background subject matter in basic chemistry and physics to enable them to incorporate meaningful and accurate concepts in physical science into their curricula. Credit is applicable toward the M.Ed or the M.S. in Science Teaching Degree. Lecture and Laboratory. 6 sem. hrs.

Participants whose backgrounds warrant it may take more advanced courses from the group Ch. 411 through Ch. 499. Two to four of these courses may be taken for a total of eight semester hours a year. All advanced courses will be given in any three-year sequence. During laboratory, opportunities will be available for preparation of molecular models and other demonstration material for use in the participants own high school classes.

Ch. 405-406T—Principles of Chemistry for Elementary School Teachers

Similar to Ch. 403-404T, except more extensive. Lecture. 6 sem. hrs.

Ch. 407T—Philosophy of Science

A seminar type course designed to familiarize elementary school teachers with the philosophy, terminology, and methodology of science. Lecture. 2 sem. hrs.

Ch. 408T—Laboratory Experiments in Chemistry

Accompanies Ch. 405-406. Laboratory. 2 sem. hrs.

Ch. 409T—Preparation of Materials Laboratory

A practical course in the preparation of devices and other teaching aids suitable for use in the elementary school classroom. Lecture demonstration and Laboratory. 4 sem. hrs.

Ch. 410T—Elementary Science Practicum

Supervised experience with elementary school children in the learning of physical science principles using Montessori-type Devices. 4 sem. hrs.

Ch. 411T—Quantitative Analysis

Basic principles and techniques of quantitative analysis including stoichiometry, evaluation of measurements, acid-base equilibria, redox, precipitation, titration, and gravimetric methods. Lecture and Laboratory. 4 sem. hrs.

Ch. 412T—Analytical Chemistry I

Basic principles of analytical chemistry. Separation of ions, volumetric and gravi-

metic analysis, acidimetry and alkalimetry, redox methods, the use of adsorption indicators, iodimetry, statistical methods applied to analytical chemistry, use of organic precipitants, EDTA, colorimetry, electrometric methods, chromatography. Lecture and Laboratory. 4 sem. hrs.

Ch. 413T—Analytical Chemistry II

An analytical instrumentation course, including spectrophotometry, (IR, visible, UV, flame), chromatography (gas, thin-layer, column), electrometric methods and polarography. Lecture and Laboratory. 4 sem. hrs.

Ch. 421T—Organic Chemistry

Covers structural and bonding theory, organic reaction mechanisms, stereochemistry, and type reactions of organic compounds. Modern methods of determining molecular structure. Lecture and Laboratory. 4 sem. hrs.

Ch. 422T—Organic Reactions and Mechanisms

A detailed study of the major type and name reactions. Mechanisms will be discussed using kinetics, thermodynamics, and other physicochemical principles. Lecture. 3 sem. hrs.

Ch. 423T—Techniques of Organic Chemistry

Selected experiments using apparatus and instruments not normally available in an introductory organic laboratory course. Opportunity will be given to develop demonstrations and experiments suitable for use in high school chemistry courses. Laboratory. 1 sem. hr.

Ch. 424—Instrumental Organic Analysis

A detailed study into the fundamental physical principles of construction and operation of scientific electronic equipment used routinely in the analysis of organic compounds. Lecture, Demonstration and Laboratory. 4 sem. hrs.

Ch. 431T—Inorganic Chemistry

Nuclear structure and reactions, atomic structure, chemical bonding, and periodicity. Inorganic stereochemistry and reaction mechanisms, acid-base theories, and non-aqueous solvents. Lecture. 3 sem. hrs.

Ch. 432T—Inorganic Chemistry Techniques

A presentation of special laboratory techniques illustrated by carefully chosen syntheses of several types of compounds. Laboratory. 1 sem. hr.

Ch. 441T—Physical Chemistry

The states of matter and kinetic theory, thermodynamics, the laws of solutions, chemical and physical equilibria, chemical kinetics, electrochemistry, colloids, and molecular structure. Lecture and Laboratory. 4 sem. hrs.

Ch. 442T—Colloid Chemistry

Basic principles of colloid chemistry including interfacial phenomena, viscosity, nucleation, lyophilic and lyophobic systems, optical and electrical properties of colloids. Lecture. 3 sem. hrs.

Ch. 443T—Colloid Chemistry

Preparation and coagulation of colloids. Determination of particle size, shape, form, and structure. Laboratory. 1 sem. hr.

Ch. 444T—Thermodynamics

Selected topics from the field of classical thermodynamics including the mathematical derivation of formulae expressing the three Laws of Thermodynamics. Lecture. 3 sem. hrs.

Ch. 446T—Physical Organic Chemistry

Covers advanced aspects of structure and bonding of organic molecules, resonance, inductive and conformational effects on reactivity and basic elements of spectroscopy. Lecture, demonstration and laboratory. 4 sem. hrs.

Ch. 451T—Biochemistry

Review of the organic chemistry of carbohydrates, lipids, proteins, and nucleic acids. Enzymology, digestion, metabolism, respiration, and endocrinology. Aspects of clinical chemistry. Laboratory work will include typical reactions and determinations on major biological compounds, selected kinetic experiments on the dynamic aspects of biochemistry, and demonstrations of more refined biochemical techniques. Lecture and Laboratory. 4 sem. hrs.

Ch. 452T—Biochemical Mechanisms

A detailed study of individual reactions involved in the synthesis, degradation, and interconversions of major biological compounds with some emphasis on the physico-chemical aspects. Lecture. 3 sem. hrs.

Ch. 453T—Biochemical Techniques

Selected experiments using apparatus and instruments not normally available in an introductory biochemical laboratory course. Laboratory. 1 sem. hr.

Ch. 455, 456, 465, 466—Advanced Placement Chemistry I, II, III, and IV

Fundamental principles in chemistry are treated in sufficient depth to enable high school teachers to teach a course in chemistry comparable to a freshman college level course. This is a partially sequential Summer Institute program which may be attended for two summers. Lecture and Laboratory. 4 semester hours each for a maximum of 16 semester hours.

Ch. 499T—Research in Chemistry Teaching

Individual or group research aimed at developing and perfecting chemistry experiments, demonstrations, lecture and laboratory syllabi for adaption into high school chemistry courses. 0-3 sem. hrs.



Mathematics Course Offerings

Chairman: Robert T. McLean, Ph.D.

The following courses are especially designed for Teachers of Mathematics according to the Recommendations of the Mathematical Association of America for the Training of Mathematics Teachers. See detailed report of the Committee on the Undergraduate Program in Mathematics and Its Panel on Teacher Training in American Mathematical Monthly, volume 67, 1960, pp. 982-991. Also see similar report in The Mathematics Teacher, volume LIII, number 8, 1960.

Mt. 401—Foundations of Mathematics

The axiomatic method; theory of sets; infinite sets; countability and cardinality; well-ordered sets; ordinal numbers; mathematical logic; intuitionism; formalism; Hilbert's "proof theory"; Godel's proof. 3 sem. hrs.

Mt. 403-404—Algebraic Structures of the Number System

Topics selected to introduce the secondary school teacher to abstract thinking and

to generate in him an appreciation for mathematical structure. This course assumes no prior training in "modern" mathematics. Any high school mathematics or science teacher is eligible for enrollment. While not designed for this purpose, this course will also supply much of the background needed for future enrollment in the linear algebra and analysis. 6 sem. hrs.

Mt. 405-406—Geometrics—Synthetic and Coordinate

Topics include sets, betweenness, planes, separation, induction and deduction, proof, perpendicular lines, parallel lines, Euclid's fifth postulate, elementary notions about non-Euclidean geometries, parallel planes, congruence, similarity, geometric inequalities, constructions, loci, plane coordinate geometry, proof-using methods of coordinate geometry, areas of polygons, and circles, areas and volumes of solids and miniature geometries. 6 sem. hrs.

Mt. 407-408—Functions, Concepts and Representations

Selected functions and relations chosen with the secondary school teacher's needs in mind. Topics will include an introductory study of functions and relations treated abstractly, trigonometric functions, solutions of simultaneous equations by various methods (including computer and matrix methods), probability and frequency functions, introductory analysis. 6 sem. hrs.

Mt. 413-414—Abstract Algebra

Algebraic structures, such as groups, rings, fields, etc. Rigorous proofs emphasizing the axiomatic treatment. 6 sem. hrs.

Mt. 421-422—Introduction to Linear Algebra and Matrices

Systems of linear equations; vector spaces; basic operations for matrices; determinants; bilinear and quadratic functions and forms; linear transformations on a vector space and canonical representations of a linear transformation. 6 sem. hrs.

Mt. 423-424—Advanced Linear Algebra

Real, finite-dimensional cases. Concrete manipulation of vectors and matrices. Vector equations and inequalities, intuitive introduction to linear programming and games. Linear functions and transformation, including a thorough understanding of the solution of m equations in n unknowns. 6 sem. hrs.

Mt. 427-428—Basic Analysis—A Depth Treatment

A detailed study of the basic concepts of analysis. It will include topological properties of the real numbers; the limit concept; infinite sequences and series; functions defined by sequences and series; continuous functions; uniform continuity; applications to the Calculus. 6 sem. hrs.

Mt. 431-432—Foundations of Geometry and Trigonometry

A course designed for a formal development of affine and Euclidian geometry, attempting to present coherent development of those portions of geometry actually a part of present day mathematics, meeting the standards of rigor of, employing the concepts and procedures of, and attaching naturally to, present day mathematics. The algebra of real numbers is the basis of this geometry. 6 sem. hrs.

Mt. 433-434—Geometry

Foundations of geometry (in the sense of Hilbert). Generalization of the idea of congruence to include rigid motions, that is, one-to-one correspondence preserving distances. A corresponding generalization of the ideas of similarity. Measure theory; familiar area and volume formulas as theorems; Cavalieri's Principle. 6 sem. hrs.

Mt. 435—Pure Analytic Geometry

Points, lines, and so on are defined and treated in terms of an algebraic model. This development is based on the fifteen axioms for plane geometry as published in Hilbert's *Grundlagen*. The undefined terms in the axioms—six in number—are shown to be in algebraic correspondence by means of coordinates. 3 sem. hrs.

Mt. 440—History of Mathematics

This course provides a vibrant study of mathematical development from prehistoric time to the "modern" mathematics puzzling the parents of today's elementary school students. 3 sem. hrs.

Mt. 447-448—Probability and Statistics

Probability theory from a set-theoretic point of view, and application of basic probability theory to problems of statistical inference. 6 sem. hrs.

Mt. 453-454—Calculus and Analytic Geometry

A more rigorous treatment of the material in Mt. 353-354 with greater manipulative skills expected. Infinite sequences and series. Elementary differential equations. 6 sem. hrs.

Math 455-456—Calculus II

This course develops the theoretical aspects of calculus. For the student who already has some experience in the procedures and practices of calculus, this course offers an investigation of the theory from which such procedures and practices emerge. Prerequisite: Background equivalent to Math 427-428 or Math 453-454 (both are advised). 6 sem. hrs.

Mt. 461-462—Theory of Real Functions

This introductory graduate level course investigates in depth concepts of uniform continuity and convergence, covering sets, almost continuous functions, Lebesgue integrals and other related topics. 6 sem. hrs.

Mt. 463-464—Theory of Complex Functions

Analytic functions, Cauchy integral theory, meromorphic functions, analytic continuation are included in the scope of this course.

Mt. 493—Programming Mathematical Problems for Digital Computers

Input, output, and storage devices; binary, octal, hexadecimal and other number systems; coding and programming in machine language; flow charts; sequencing; loops and branches; automatic address modification; precision and scaling; subroutines; testing programs; optimum programming; automatic programming; compilers. 3 sem. hrs.

Mt. 494—Numerical Analysis

Ordinary finite differences; divided differences; interpolation; subtabulation; series and integrals; numerical solution of differential equations; linear systems and matrices; solution of linear equations; difference equations; solution of partial differential equations by difference methods; control of errors. Prerequisites: Mt. 493. 3 sem. hrs.

Mt. 499—Research

3 sem. hrs.



Physics Course Offerings

Chairman: Carl H. Brans, Ph.D.

Special advanced offerings designed specifically for High School Teachers of Physics will be presented as demand and resources permit. These of-

ferings will generally carry graduate credit and will be applicable toward the M.S. (Physics Teaching) degree. Applicants for such degree program must fulfill the general requirements stated on explanation page entitled "Graduate Programs in Science Teaching in the Chemistry, Mathematics and Physics Department."

Ph. 470-471—Introductory Physical Science

A unified laboratory-lecture course designed for teachers of students at the junior high level. This laboratory-oriented course, which had its genesis in the Physical Science Study Committee physics program, is expected to equip students to meet the challenge of the various new senior high school courses in science. The study of matter is the central theme; differences between substances and the idea of quantity are the avenues of approach. Participants have a very active role in the program, observations and experiments being integrated directly and immediately with the lectures and problems.

4 sem. hrs.

Ph. 472-473—Harvard Project Physics

A fresh approach to the teaching of physics primarily from the humanistic point of view. Materials comprising Project Physics include six basic Units, forming the *main line* course, plus a choice of selections from a number of supplemental Units. The course essentially is designed to be good physics in the widest, most humanistic way possible, and presented at a culturally scientific level to challenge the interests and ability of the majority of all senior high school students.

In addition to texts for the above Units other materials in Project Physics include a number of visual aids, special readers, and ingenious laboratory devices. Flexibility of presentation is built into the Project Physics so that high school students and teachers alike have considerable freedom in structuring their individual programs.

6 sem. hrs.

Ph. 481-491—Foundations of Modern Physics

Historical and philosophical origins of present-day physical theories. Fields and forces. Modern energy-space-time concepts. Selected experiments from Modern and Atomic physics.

6 sem. hrs.

Ph. 482-492—General Physics

A review of the traditional divisions of basic physics with special emphasis on "workshop" participation general discussion of problems arising in high school classrooms and the analysis and solutions of physical problems. Special experiments and demonstrations by participants according to field of interest.

6 sem. hrs.

Ph. 483-493—Classical Mechanics and Mathematical Methods

A theoretical course based fundamentally on the conservation theorems. Foundations of classical mechanics including statics, kinematics, and dynamics of a rigid body, oscillatory and planetary motion, are treated. Also included are selected topics from thermodynamics and statistics.

6 sem. hrs.

Ph. 484-494—Elements of Electricity and Electronics

Theory, circuitry, and measurements in electricity and electronics. AC and DC nets are considered; solid-state as well as thermionic devices will be treated. Measurements will include resistivity, currents, potentials, capacitance, and inductance. Instrumentation will be adaptable to the high school inventory as far as practicable. Experiments will include oscillators, amplifiers, photo and control devices.

6 sem. hrs.

Ph. 488-498—Advanced Projects

Independent study and activity by participants in generating materials considered by them to be especially needed and useful in science classes and demonstrations. The facilities of the entire department will be available for use. This includes the dark rooms and other photographic facilities, machine and carpentry shops, and in-

structional lab equipment in all fields of general physics. Enrollment is strictly limited to participants who present evidence of special competence in either audio-visuals or in demonstration apparatus construction. 6 sem. hrs.

Ph. 495—Basic Optics and Wave Motion

Geometrical and physical optics using simplified equipment readily available. Fundamental principles, rather than completed optical instruments, will be emphasized. Primarily a laboratory course modeled after the Palmer manual. 3 sem. hrs.

Ph. 496—Atomic Physics

Origin and development of some of the more important concepts of the physics of the 20th Century, with main emphasis being placed on introductory quantum principles, the extra-nuclear structure of the atom, and an introduction to radioactivity and nuclear processes. 3 sem. hrs.

Ph. 497—Introductory Electromagnetics

A presentation from field-theoretical viewpoint. Topics to be presented will include fields, potential, dielectrics, electromagnetics, currents, Maxwell's equations, and waves. The use of calculus and elementary vectors will be presumed. 3 sem. hrs.

Ph. 499—Research

2-4 sem. hrs.



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A. William Crandell, S.J., Acting President
1717 Massachusetts Avenue, N.W., Suite #402

Washington, D.C., 20036

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